

L 19771-65 EWT(m)/EPF(c)/EPA(w)-2/T Pr-4/Pab-10 RWH/WW

ACCESSION NR: AT5001015

S/2850/64/011/000/0147/0150

AUTHOR: Bekturov, Ya. A.; Kemeleva, Z. Kh.; Gutsalyuk, V. G.; Rafikov, S. R. 131

TITLE: Molecular characteristics of high molecular weight synthetic asphaltenes

SOURCE: AN KazSSR. Institut khimicheskikh nauk. Trudy, v. 11, 1964. Sintez i  
Issledovaniye vysokomolekulyarnykh soyedineniy (Synthesis and research of high-  
molecular compounds), 147-150

TOPIC TAGS: asphaltene, petroleum refining, asphaltene molecular weight, Markussan  
method

ABSTRACT: Measurements of the osmotic pressure and viscosity of benzene and chlorobenzene solutions of synthetic asphaltenes showed that their main components are compounds with molecular weights of approximately  $30 \times 10^3$  and nearly spherical particle shapes. The synthetic asphaltenes were recovered by Markussan's method from petroleum residues which had been processed by oxidative dehydropolycondensation under commercial conditions. Cryoscopic measurements and osmometric values obtained with a membrane of very low porosity indicated the presence of low molecular weight fractions, which decreased the average molecular weight to  $4-5 \times 10^3$ . The measured properties were little affected by concentration or temperature, and aggregation of disaggregation of the particles apparently does not occur at the

6378 2

L 19771-65

ACCESSION NR: AT5001015

experimental temperature range of 20-60C. "Ye. G. Davy\*dova took part in the  
experimental part of the work." Orig. art. has: 2 figures.

ASSOCIATION: Institut khimicheskikh nauk, Akademiya nauk Kazakhskoy SSR (Institute  
of Chemical Sciences, Academy of Sciences of the Kazakh SSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, FP

NO REF SOV: 007

OTHER: 007

Card 2/2

L 34146-65

EPF(c)/EPF(n)-2/ENG(j)/EWA(h)/ EWP(j)/EWT(m)/T/EWA(l)<sup>1C</sup>  
Pu-4/Peb GG/JAJ/RM/GS

Pc-4/Fr-4/

ACCESSION NR: AT4049851

S/0000/64/000/000/0126/0130

58  
55  
B+1

AUTHOR: Chao, Hsiang-tsun; Valetskiy, P. M; Vinogradova, S. V.; Glazunov, P. Ya.;  
Korshak, V. V.; Rafikov, S. R.; Tsetlin, B. L.

TITLE: Chemical transformations of polymers. XI. Radiation-induced chemical reactions of polyarylates

SOURCE: Khimicheskiye svoystva i modifikatsiya polimerov (Chemical properties and the modification of polymers); sbornik statey. Moscow, Izd-vo Nauka, 1964, 126-130

TOPIC TAGS: polyarylate, radiation chemistry, isophthalic acid, diphenylol propane, polyethylene terephthalate, polycarbonate, polyisobutylene, hydroquinone, ionizing radiation

ABSTRACT: For the investigation of the radiation-induced chemical reactions of polyarylates, a polyarylate (ID) obtained by polycondensation of isophthalic acid with diphenylolpropane, a polyarylate (IH) based on isophthalic acid and hydroquinone, and a polycarbonate (Makrolon) were used as test samples in both crystalline and amorphous forms. Irradiation was carried out at an electron accelera-

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L 34146-65

2

ACCESSION NR: AT4049851

tor voltage of 800 kv, a current density of 0.1-0.2 microampere (on the samples), and a dose of  $2-4 \times 10^{18}$  ev/cc.sec. The preparation of the different samples and the experimental procedure are described. The thermomechanical curves taken at a specific load of 0.8 kg/cm<sup>2</sup> and a heating rate of 75C per hour showed that polyarylates have a high stability toward the effect of ionizing radiation. The radiation yield of the gaseous products of the radiolysis of polyarylates is 0.02 mole/100 ev, which is much lower than the yield from irradiation of polyethylene terephthalate or polycarbonate. The molecular structure of polyarylates does not change significantly at doses on the order of  $10^{23}$  ev/cc. It is to be noted that, in the gaseous products of the radiolysis of polyarylate (ID) and polycarbonate (Makrolon) containing diphenylolpropane residues, even traces of methane are lacking. As is known, during the irradiation of polyisobutylene containing analogous groups ( $-C(CH_3)_2$ ), methane is one of the main components of the gaseous mixture. From the experimental data and from the fact that hydrogen evolution is stronger for ID than for IH, it is concluded that the isopropyl group in diphenylolpropane is stabilized by the two phenyl groups linked with it. The energy of radiation absorbed by this group migrates to the aromatic rings and is partially scattered, as a result of which hydrogen atoms split off from

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I. 34146-65

ACCESSION NR: AT4049851

the phenyl groups. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Heteroorganic compound institute, AN SSSR)

SUBMITTED: 31Aug62

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 005

OTHER: 002

Card 3/3

L 27093-66 EWF(j)/EWT(m)/T IJF(c) RM/WW  
ACC NR: AN6010585

SOURCE CODE: UR/0081/65/000/018/5019/5019

AUTHOR: Rode, V. V.; Zhuravleva, I. V.; Rafikov, S. R.

TITLE: Thermooxidation of phenolphthalein-based polyarylates.

SOURCE: Ref. zh. Khimiya, Abs. 185126

REF SOURCE: Vestn. tekhn. i ekon. inform. N.-1. in-t tekhn.-ekon. issled. Gos. kom-ta khim. prom-sti pri Gosplane SSSR, vyp. 12, 1964, 13-14

TOPIC TAGS: thermal decomposition, oxidation kinetics, polyester plastic

ABSTRACT: The process of thermooxidative destruction of heterochain phenolphthalein polyesters, isophthalic (1) and terephthalic acids (2) at temperatures of 350° to 500° on air and in a closed system under static conditions at an O<sub>2</sub> pressure of 120mm Hg column, is studied by the continuous weighing method. Kinetic curves for (1) and (2) weight loss were plotted. The rate of destruction exponentially depends on the temperature and is presented by an equation of the first order. The effective activation energy of destruction for (1) and (2) is equal 29.2 and 31.7 kcal/mol, respectively. The study of the thermal destruction of (2) in a closed system showed that the sole gaseous products are CO<sub>2</sub> and CO. The thermal destruction of (2)

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L 37093-66

ACC NR:AR6010585

results in the formation beside gases, of solid, low molecular substances (diphenyl, benzoic acid) and high-molecular residue, consisting of products of intermolecular reaction of cross-linked structures. Yu. Yershov.

SUB CODE: 07/ SUBM DATE: none

*ms*  
Card 2/2

POLIMBENOVA, F.A.; SIVKOV, B.V.; RAYKOV, E.P.; KOGANITSKIY, A.D.;  
BOGDANOV, Ye.I.

Some results of research on the synthesis and tests of the growth  
promoting substance "nikazin". Vest. AN Kazakh. SSR. 20 no.7:3-10  
Jl '64. (MIRA 17:11)



L 17944-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM  
 ACCESSION NR: AP5002562 5/0079/64/034/007/2230/2233

AUTHOR: Rafikov, S. R.; Yergebekov, M. Ye.

TITLE: Synthesis of p-methylbenzylphosphinic acid 7

SOURCE: Zhurnal obshchey khimii, v. 34, no. 7, 1964, 2230-2233

TOPIC TAGS: phosphinic acid, organic synthetic process, chlorinated organic compound

Abstract: The authors describe an attempt to synthesize p-methylbenzylphosphinic and p-xylylenediphosphinic acids by a more accessible method than the previously described action of triethyl phosphite on the corresponding chloro derivatives of p-xylene. The reaction of oxidative chlorination of p-xylene was studied for this purpose. The previously undescribed dichloride of p-methylbenzylphosphinic acid was produced and identified by conversion to the corresponding acid, its diethyl ester, and its lead salt. It was found that the introduction of the phosphinic group into one of the methyl groups of p-xylene prevents the chlorophosphination of the second methyl group. Orig. art. has 1 graph.

Card 1/2

L 17941-65

ACCESSION NR: AP5002562

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR  
(Institute of Organoelemental Compounds, Academy of Sciences, SSSR)

SUBMITTED 29Apr63

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 005

OTHER: 003

JPRS

Card 2/2

RAFIKOV, S.R., doktor khim. nauk

"Aging and stabilizing of polymers". Reviewed by S.R. Rafikov.  
Vest. AN SSSR 34 no.10:128-129 O '64.

(MIRA 17:11)

1. The first part of the document is a letter from the

author to the editor of the journal. The letter is dated 10/10/85 and is addressed to the editor of the journal. The letter is signed by the author and is dated 10/10/85.

KORSHAK, Vasil'y Vladimirovich; VINOGRADOVA, Svetlana Vasil'yevna;  
RAFIKOV, S.R., doktor khim. nauk, otv. red.; LOSKUTOVA,  
I.P., red.

[Polyarylates] Poliarilaty. Moskva, Izd-vo "Nauka,"  
1964. 67 p. (MIRA 17:6)

1. Deystvitel'nyy chlen AN Kaz.SSR (for Rafikov).

L 34448-65 EPF(c)/EPF(n)-2/EMJ(j)/EMA(n)/EMT(m)/T/EMA(1)/EMP(j) PC-4/PR-4/YU-4/POB  
 GG/JAJ/RM/GS S/0000/64/000/000/0122/0125 53

ACCESSION NR: AT4049850

AUTHOR: Golubev, V. V.; Karpova, G. V.; Korshak, V. V.; Rafikov, S. R.;  
 Tsetlin, B. L.; Chao, Hsiang-tsun 50  
 6+1

TITLE: Chemical transformations of polymers. X. Radiation-induced chemical  
 reactions of mixed polyesters based on terephthalic and sebacic acids and ethylene  
 glycol 19

SOURCE: Khimicheskiye svoystva i modifikatsiya polimerov (Chemical properties  
 and the modification of polymers); sbornik statey. Moscow, Izd-vo Nauka, 1964,  
 122-125

TOPIC TAGS: mixed polyester, terephthalic acid, sebacic acid, ethylene glycol,  
 polyethylene sebacate, polyethylene terephthalate, vulcanization, dicarboxylic  
 acid, ionizing radiation, xray vulcanization

ABSTRACT: The radiation-induced chemical reactions of polyesters obtained by  
 polycondensation of dicarboxylic acids with diols were investigated. Polyethylene  
 sebacate, polyethylene terephthalate and mixed polyesters obtained from a mixture  
 of sebacic and terephthalic acids, containing 10, 20, 40, 50, 70 and 80 mol.%  
 terephthalic acid, were used as test samples. Polycondensation was carried out  
 in nitrogen, then in a vacuum (2mm) over a temperature range of 180-260C.  
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L 34148-65

ACCESSION NR: AT4049850

The reduced viscosity of the resulting polyester varied from 0.3 to 0.5. Small disks 5 mm in diameter and 1 mm thick were investigated. The samples were irradiated in an X-ray apparatus of the TRTs-3 type at 80 kv, at a current of 200 ma, dose  $5 \times 10^{16}$  ev/cc/sec. The nature of the reactions was determined on the basis of the thermomechanical properties, and the variation in solubility and viscosity of the solutions was also determined. It was found that in many mixed polyesters, the rate of radiation vulcanization decreases gradually as the amount of terephthalic acid residues in the polymer increases. At low and medium radiation doses polyethylene terephthalate showed radiation-induced degradation. At higher doses ( $10^{23}$  ev/cc), it undergoes vulcanization, while for amorphous samples, the rate of radiation vulcanization is higher. The solubility of certain samples was unchanged after irradiation. The reduced viscosity of the cresol solution (0.2% by weight) of TSEG-82 (mixed polyester) increased from 0.31 to 0.44, while for polyethylene terephthalate it decreased from 0.50 to 0.30, which showed partial degradation. The effect of the degree of crystallinity of the sample on the character and rate of radiation-induced chemical transformations was also investigated and discussed. Orig. art. has: 2 figures.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Heteroorganic compounds institute, AN SSSR)

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L 35074-65 EPF(c)/EWG(j)/EWA(h)/EWP(j)/EWT(m)/T Pc-4/Pr-4/Peb JAJ/RM

ACCESSION NR: AR5006367

S/0081/64/000/024/S027/S027

SOURCE: Ref. zh. Khimiya, Abs. 24S155

33  
32

AUTHOR: Rafikov, S. R.; Hsu, Chi-p'ing

B+1

TITLE: Chemical transformations of polymers. IX. Effect of certain stabilizers on the light aging of polycapronamide<sup>15</sup>

CITED SOURCE: Sb. Vysokomolekul. soyedineniya. Khim. svoystva i modifik. polimerov. M., Nauka, 1964, 131-136

TOPIC TAGS: polymer, light aging, stabilizer, ionol, chlorine inorganic compound

TRANSLATION: Changes in the mechanical and physicochemical properties of a polycapronamide PK-4<sup>15</sup> film under UV-radiation were studied in varying conditions in the presence of the stabilizers Cu, Cr, Zn, and Cd chlorides, and 2,6-di-tert-butyl-4-methylphenol (ionol), 2,4-dioxybenzophenone, di-8-naphthylphenylenediamine, o-phenylbenzoxazole, and benzophenone. Addition of the metal chlorides does not affect the CO and H<sub>2</sub> evolution rate upon radiation by the total spectrum of a PKK-2 tube in a vacuum at 30°C, but radiation by near ultraviolet CuCl<sub>2</sub> has a strong dehydrating action. The mechanical properties of the film are preserved better

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L 35074-65

ACCESSION NR: AR5006367

upon the addition of Cu and Cr chlorides than in the control sample. These data indicate that it is incorrect to assume that erroneousness of the ideas about the amide bond is strengthened by the formation of chelate structures. Apparently the protective action of these salts is connected with their filtering properties. Organic stabilizers, especially typical antioxidants, are more effective protectors from light aging during the radiation of the film in a vacuum or in the presence of O<sub>2</sub>. They suppress gas evolution and secondary processes of film structuring. Films saturated with such stabilizers become less transparent in the visible and ultra-violet regions. This lowers their value for certain applications, e.g. for hot-house culture. For Report VIII see RZhKhim, 1963, 10S88. Authors' abstract

SUB CODE: MT, OC

ENCL: 00

Card 2/2

GLADYSHEV, Georgiy Pavlovich; RAFIKOV, S.R., akademik, otv.  
red.; GLAZYRINA, D.M., red.; KOVALEVA, I.F., red.;

[Polymerization of vinyl monomers] Polimerizatsiia vinil'-  
nykh monomero. Alma-Ata, Izd-vo AN Kaz.SSR, 1964. 321 p.  
(MIRA 17:7)

1. Akademiya nauk Kaz.SSR (for Rafikov).

1. The first of these is the

fact that the United States has a long history of  
intervention in the affairs of other countries.  
(U.S. State Dept. Bulletin, 1947, p. 101)

2. The second of these is the

SEMBAYEV, D. Kh.; SUVOROV, B.V.; RAFIKOV, S.R., akademik

Oxidizing ammonolysis of methyl vinyl ketone. Dokl. AN SSSR 155  
no. 4:868-871 Ap '64. (MIRA 17:5)

1. Institut khimicheskikh nauk AN Kazakhskoy SSSR. 2. AN Kazakhskoy  
SSSR (for Rafikov).

LESOV, A.V.; GLADYON, P. Ya.; MOROZOV, Yu.L.; PAVLAKH, I.I.; POLAK,  
I.S.; RAFIKOV, S.R., akademik; TSETLIN, E.I.

Synthesis of semiconducting combined materials by the method  
of gas-phase grafted radiation polymerization. Dokl. AN SSSR  
158 no.1:141-142 S-O '64 (MIRA 17:2)

1. AN KazSSR (for Rafikov).

ZAMYATINA, V.A.; KORSHAK, V.V.; SOLOMATINA, A.I.; CHIKISHEV, Yu.G.;  
TSETLIN, B.L.; RAFIKOV, S.R.; GLAZUNOV, P.Ya.

Radiation synthesis of polymers based on trimeric cyclic dimethyl-  
phosphinoborane. Dokl. AN SSSR 159 no.6:1361-1363 D '64  
(MIRA 18:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen  
korrespondent AN SSSR (for Korshak).

L 53752-65 BWT(m)/EDT(c)/DPL/WWP( )/A/DWA(c) P-4/Tr-4/Tr-4 DFL WW/  
JE/R:

ACCESSION NR: AP5012827

UR/0360/65/000/001/0030/0037

AUTHOR: Rafikov, S. R.; Derevyanchenko, V. P.; Zhubanov, B. A. 37  
35

TITLE: Study of the thermal stability of para- and meta-xylylenediamine 7 B

SOURCE: AN KazSSR. Izvestiya. Seriya khimicheskikh nauk, no. 1, 1965, 30-37

TOPIC TAGS: xylylenediamine, amine polycondensation, polyamine, deamination, polymer, reactive hydrocarbon, xylene

ABSTRACT: The purpose of the study was to determine the stability of *m*- and *p*-xylylenediamine at 250-270°C (i.e., at temperatures close to those used in the synthesis of polyamides) and to investigate the kinetics and mechanism of degradation of these diamines. The deamination rate was measured by titrating the ammonia evolved by the xylylenediamines. The rate constants of deamination of the meta isomer were found to be considerably lower than those of the para isomer. Potentiometric titration of the solid decomposition residue with 0.1 *N* perchloric acid in glacial acetic acid showed that the thermal degradation of the meta isomer formed large amounts of secondary amines, and that of the para isomer formed large quantities of tertiary amines (low molecular polyamines). Electron spin resonance spectra showed that no free radicals were present in the frozen reaction products. It

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ACCESSION NR: AP5012827

2

was concluded that the process of deamination of meta- and para-xylylenediamine are not radical reactions, but proceed via an ionic mechanism. This conclusion is also confirmed by the fact that no hydrogen was present in the gaseous reaction products. The authors recommend the use of thoroughly purified xylylenediamines in the process of polycondensation, since the presence of traces of secondary amines in the diamines accelerates the deamination of primary amino groups which forms polyamines. "The authors thank D. V. Sokol'skiy and N. I. Shcheglova for providing the diamines used in the study." Orig. art. has: 3 figures and 5 tables.

ASSOCIATION: none

SUBMITTED: 30Sep64

ENCL: 00

SUB CODE: OC, TD

NO REF SOV: 006

OTHER: 003

Card 2/2



L 23227-66

EWT(m)/EWP(j)/T

IJP(c)

WW/RM

ACC NR: AP6013596

SOURCE CODE: UR/0191/65/000/002/0004/0007

AUTHOR: Rafikov, S. R.; Serganova, G. K.

ORG: none

TITLE: Graft polymerization of methyl methacrylate (MMA) and styrene on amber

SOURCE: Plasticheskiye massy, no. 2, 1965, 4-7

TOPIC TAGS: polymerization, graft copolymer, methylmethacrylate, styrene, vinyl plastic, polymer, vinyl chloride, electric property

ABSTRACT: The graft polymerization of certain vinyl monomers on amber, a natural trimeric polymer containing small quantities of soluble fractions was studied. Copolymers of amber with MMA and styrene were prepared and investigated. Vinyl acetate, acrylonitrile, and vinyl chloride do not form copolymers with amber under the conditions studied. Graft copolymers were prepared by the initiation of polymerization of the monomer by macro radicals formed during the decomposition of the peroxide groups of amber oxidized by atmospheric oxygen. Various mechanical and electrical properties of the graft copolymers of methyl methacrylate and amber, and styrene and amber are presented. The authors thank L. A. Igonin and his laboratory co-workers for determination of the thermomechanical and electrical characteristics of copolymers. Orig. art. has: 3 figures and 4 tables. [JPRS]

SUB CODE: 07, 11 / SUBM DATE: none / ORIG REF: 007

Card 1/1

UDC: 678.744.335-134.622

L 43074-66 SWF(m)/FWP(1)/T IJP(c) PM/ST/MD  
ACC NR: AP6014705 (A) SOURCE CODE: UR/0360/65/000/004/0082/0094

12  
70  
B

AUTHOR: Yergozhin, Ye. Ye.; Rafikov, S. R.; Shostak, F. T.

ORG: none

TITLE: Chemical transformations of polymers. Communication 28. Synthesis and analysis of cross-linked polynitro(styrene-co-divinylbenzene)

SOURCE: AN KazSSR. Izvestiya. Seriya khimicheskikh nauk, no. 4, 1965, 82-94

TOPIC TAGS: polystyrene, copolymer, thermal stability, polyvinyl, nitration, organic nitro compound, vinyl polymer, polymer structure

ABSTRACT: In order to clarify the structure of cross-linked polynitro(styrene-co-DVB), the authors investigated the nitration of this copolymer under various conditions and some of the properties of the mononitro derivatives produced. The copolymer was synthesized by adding 0.68 g of PVA in 120 ml distilled water to a mixture of 20 g styrene, 6 g DVB, and 0.4 g benzoyl peroxide and heating to 80C for 5 hr with constant stirring. Nitration of the copolymer was carried out at -5C with mixtures of nitric and sulfuric acid varying in composition from pure HNO<sub>3</sub> to 229 g H<sub>2</sub>SO<sub>4</sub> + 101 g HNO<sub>3</sub>, and the effect of the proportions of nitric and sulfuric acid on nitration kinetics and the final degree of nitration was investigated; the best results

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ACC NR: AP6014705

2  
were obtained at a molar nitric/sulfuric ratio of 1/0.87. The swelling of both the original copolymer and the nitrated products was studied in pyridine, dichloroethane, p-xylene, benzene, chloroform, and cyclohexane. Thermographic analysis of the copolymer and its nitrated derivatives, as well as infrared and x-ray structural analyses of the products, was also carried out. The nitro group in the nitrated derivative was found to be mainly in the para position. Although the amorphous structure of the original copolymer remained unchanged after nitration, the thermal stability was lower. The authors express their gratitude to Yu. A. Kushnikov and A. Ye. Lyuts for assistance in discussing the IR spectra. Orig. art. has: 4 tables, 6 figures, and 2 formulas.

SUB CODE: 07/ SUBM DATE: 21May65/ ORIG REF: 025/ OTH REF: 014

Card 2/2 hs

L 30039-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4/Pt-10/  
Pu-4 GG/RM/WW

ACCESSION NR: AP5003825

S/0190/65/007/001/0033/0038

AUTHORS: Chikishev, Yu. G.; Tsetlin, B. L.; Rafikov, S. R.; Polikarpov, Yu. M.;  
Medved', T. Ya.; Kabachnik, M. I.

TITLE: Radiation polymerization of diphenylvinylphosphine oxide in a melt

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 1, 1965, 33-38

TOPIC TAGS: diphenylvinylphosphine, polymerization, radiation polymerization/  
ARKh 200 80 x ray apparatus

ABSTRACT: Radiation polymerization of diphenylvinylphosphine oxide (ODFVF) obtained as described by M. I. Kabachnik, T. Ya. Medved', M. Polikarpov, and K. S. Yudina (Izv. AN SSSR, Otd. khim. n., 1961, 2029) was investigated. The polymerization was studied as a function of radiation intensity (25-3500 rad/sec), radiation duration and temperature (118-200C) at a pressure of  $10^{-5}$ - $10^{-6}$  mm in an x-ray apparatus of the type ARKh-200-80. The polymer specimens were tested for composition, density, infrared absorption spectrum, thermomechanical properties, viscosity, and molecular weight after distilling away the monomer at 160-170C for 10-60 hours. The ODFVF precipitate is a white amorphous powder with a specific gravity of 1.220 (monomer 1.267), a pouring temperature of 230-250C, and a molecular weight of about 35-45000

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57  
B

L 30039-65

ACCESSION NR: AP5003825

2

for the reprecipitated polymer and 16-24000 for the distilled polymer. The thermo-mechanical compression curves for the polymer are shown in Fig. 1 on the Enclosure, and the infrared absorption curves for the polymer and monomer are shown in Fig. 2 on the Enclosure. It was found that the yield changed linearly with time, showing different slopes for different radiation intensities (0-60% yield in 70 minutes for 800 rad/sec and 0-60% in 110 minutes for 400 rad/sec). The polymerization rate was also linear with radiation intensity (0-4 by weight %/min<sup>-1</sup> as radiation was changed from 0-4000 rad/sec). The yield by weight and the molecular weight were found to be independent of radiation intensity and were 20% and 16000 respectively at a total radiation of 0.12 Mrad at 130C for the distilled ODFVF. The polymerization rate as a function of temperature is shown in Fig. 3 on the Enclosure. Activation energy was significant at 6.3 Kcal/mole at temperatures of 120-200C. The kinetic relations for the polymerization process differ from all other described radiation polymerization processes based on either the radical or ion mechanism. Orig. art. has: 7 figures.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Organic Compounds, AN SSSR)

SUBMITTED: 26Feb64

ENCL: 02

SUB CODE: OC

NO REF SOV: 009

OTHER: 004

Card 2/4

L 30039-65

ACCESSION NR: AP5003825

ENCLOSURE: 01

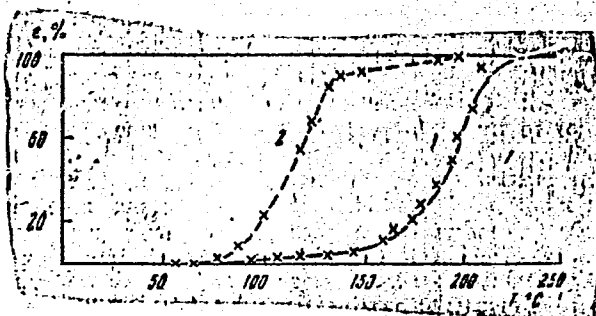


Fig. 1. Thermomechanical compression of ODFVF 100-g load, 4-mm diameter, 750 per hour. 1- reprecipitated, 2- distilled polymer

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ACCESSION NR: AP5003825

ENCLOSURE: 02

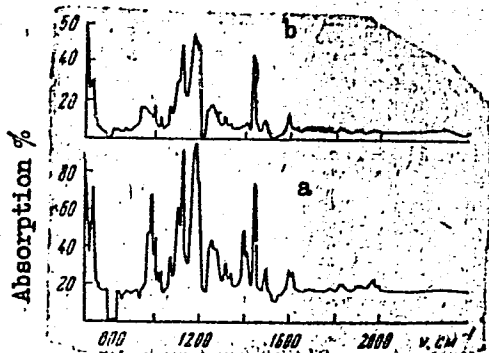


Fig. 2. IR spectrum. a- monomer, b- polymer (10% n solution in chloroform)

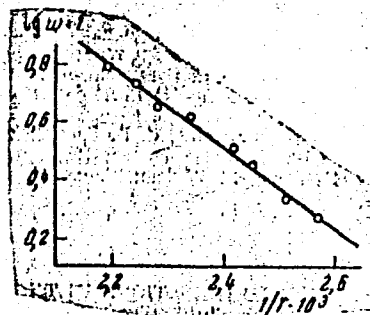


Fig. 3. Temperature dependence of ODFVF polymerization (at 150 rad/sec)

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L 35467-65 EPF(c)/EWP(j)/EWT(m)/T Pc-4/Pr-4 RM

ACCESSION NR: AP5003829

S/0190/65/007/001/0065/0069

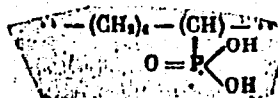
AUTHORS: Rafikov, S. R.; Chelnokova, G. N.; Yergebekov, M. Ye.; Yerashova, T. V. <sup>26</sup><sub>25</sub>

TITLE: Synthesis and study of polyalkylenephosphonic acids 1

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 1, 1965, 65-69

TOPIC TAGS: polyethylene, chlorophosphination, polymer

ABSTRACT: Oxidative chlorophosphination and the properties of polyalkylene-phosphonic (PAP) acids obtained by saponification of the products of oxidative chlorophosphination of high-pressure polyethylene containing 3-20% P were investigated.  $PCl_3$  was added in portions to the polyethylene (at  $\approx 60^\circ C$ ) while oxygen was passed through the bottom of the reactor. After a 2-hour hydrolysis of the reaction products, the chemical and thermomechanical properties of the products were investigated. It was found that the highest P content (20.5%) could be obtained by adding the  $PCl_3$  in portions at a high oxygen flow rate (35-50 liter/hr). This PAP acid has the structure



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I. 35467-65

ACCESSION NR: AP5003829

Polymers containing less than 13% P were found insoluble in water or brine but were soluble with more than 13% P. The effects of P concentration on the viscosity of PAP acid solutions were measured (see Fig. 1 on the Enclosure) and were found to be dependent on the aging time. Titration with KOH proceeded similarly to that of n-methylbenzylphosphonic acid (pH = 12 for 1.2 ml of 0.1 n KOH). The mechanical properties of PAP acids prepared at 1200 and 50 atm were found to be as follows: P = 0%, tensile strength = 130 kg/cm<sup>2</sup>, elongation = 460%; 9%, 150 kg/cm<sup>2</sup>, 250%; 14%, 250 kg/cm<sup>2</sup>, 190%. The elasticity upon heating and the weight loss during heating to 3000 were found to decrease with increased P content. The UV spectrum showed maximum absorption at 37 800 cm<sup>-1</sup>, while the IR-spectra showed wide bands in the 1000-1200 and 2300-2380 cm<sup>-1</sup> regions. Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy, AN SSSR (Institute of Organic Compounds, AN SSSR)

SUBMITTED: 03Mar64

ENCL: 01

SUB CODE: OC

NO REF SOV: 002

OTHER: 004

Card 2/3

L 35467-65

ACCESSION NR: AP5003829

0 ENCLOSURE: 01

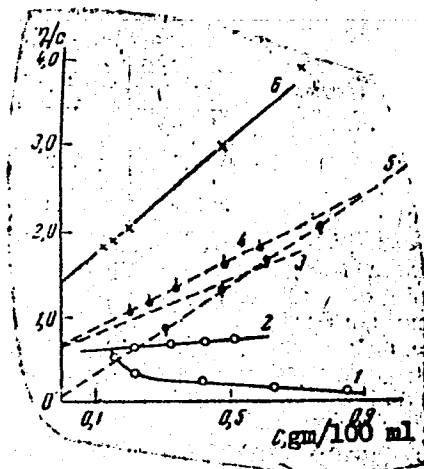


Fig. 1. Viscosity versus P concentration for PAP acid solutions  
 1 - PAP acid, 14.5% P in  $H_2O$ ; 2 - same in 0.15 n KOH;  
 3 - fresh PAP, 17% P in 0.15 n; 4 - same after 15 days;  
 5 - same after 30 days; 6 - 16% P, in 0.15 n KOH

Card 3/3

L 38624-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AP5008105

S/0062/65/000/002/0269/0275

AUTHOR: Zhuravleva, I. V.; Rode, V. V.; Rafikov, S. R.

TITLE: Chemical reactions of polymers. Report No. 19. Thermal degradation of polyarylates synthesized from phenolphthalein and terephthalic or isophthalic acid

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1965, 269-275

TOPIC TAGS: thermal degradation, polymer degradation, polyarylate degradation, phenolphthalein polymer, terephthalate polymer, isophthalate polymer, heterochain polyester

ABSTRACT: The purpose of this work was to establish the composition and relative proportions of the degradation products of polyarylates which were heterochain polyesters of phenolphthalein and isophthalic acid (F-1) or terephthalic acid (F-2), and to determine the probable mechanism of the degradation. The low-molecular products were separated by chromatography on aluminum oxide. The infusible solid degradation product consists of a carbonized three-dimensional skeleton similar to some types of bituminous coals; the low-molecular products include biphenyl, triphenyl-methane, benzoic acid, and traces of phenol and phenolphtha-

Card 1/2

L 38624-65

ACCESSION NR: AP5008105

lein; the only gaseous degradation products are carbon dioxide and monoxide. From a kinetic analysis of the evolution of gas it was concluded that the process occurs as a parallel-consecutive reaction. The theoretically calculated rate constants of the steps of these parallel-consecutive reactions are in good agreement with the experimental data. The effective activation energies of the degradation processes were determined. An interpretation of the mechanism of the process is given. "The authors thank V. V. Korshak, S. V. Vinogradova, and S. N. Salazkin for supplying the polymer samples." Orig. art. has: 6 figures, 5 tables, and 4 formulas.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR  
(Institute of Organometallic Compounds, Academy of Sciences, SSSR)

SUBMITTED: 14Feb64

ENCL: 00

SUB CODE: OC

NO REF SOV: 007

OTHER: 001

Card 2/2 *ps*

L 48977-65 EWT(n)/EPF(c)/ENP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5009662

UR/0062/65/000/003/0526/0527

24  
22  
B

AUTHOR: Rafikov, S. R., Yergebekov, M. Ye., Chelnokova, G. N., Yershova, T. V.

TITLE: Synthesis of oligomeric polymethylenephosphonic acids 7

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1965, 526-527

TOPIC TAGS: polymethylenephosphonic acid synthesis, oxidative chlorophosphonation, paraffin wax, cyclohexene, polymer crystallinity, infrared spectrum

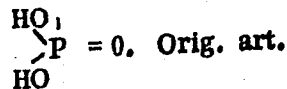
ABSTRACT: A study was made of certain factors influencing the extent of the reaction of oxidative chlorophosphonation of paraffin waxes<sup>5</sup> and the properties of the oligomeric polymethylenephosphonic acids obtained, containing various quantities of phosphonic acid groups in the molecule, were investigated. The reaction was carried out with paraffin wax of M.W. 500,  $\text{PCl}_3$ , cyclohexene (as catalyst), and oxygen. The acid chloride formed was hydrolyzed, and polymethylenephosphonic acids with various contents of phosphorus in the molecule were obtained. X-ray analysis showed that the introduction of up to 4% phosphorus in the form of phosphonic acid groups into the wax decreases the crystallinity of the original substance only slightly, whereas polymers containing 7% phosphorus have almost no crystallinity, and samples containing 11% phosphorus and more are completely amorphous. The IR spectra showed broad bands at  $2300\text{-}2400\text{ cm}^{-1}$ , characteristic of OH groups linked to

Card 1/2

L 48977-65

ACCESSION NR: AP5009662

phosphorus, and at 960-1200 cm<sup>-1</sup>, characteristic of the groups  
has: 1 table.



ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR  
(Institute of Organometallic Compounds, Academy of Sciences, SSSR); Institut khimi-  
cheskikh nauk Akademii nauk KazakhSSR (Institute of Chemical Sciences, Academy of  
Sciences, Kazakh SSR)

SUBMITTED: 28Feb64

ENCL: 00

SUB CODE: OC, CC

NO REF SOV: 001

OTHER: 001

Card

2/2

SUVOROV, H.V.; RAFIKOV, S.R.; KAGARLITSKIY, A.D.

Oxidative ammonolysis of organic compounds. Usp. khim. 34 no.9:1526-  
1549 S '65. (MIRA 18:10)

1. Institut khimicheskikh nauk AN KazSSR.

BAFIKOV, S.R., CHELNOKOVA, G.N.; ARTEMOVA, Yu.V.

Reaction of carboxylic acid esters with phosphoryl chloride.  
Zhur. ob. khim. 35 no.3:591 Mr '65. (MIRA 18:4)

1. Institut elementoorganicheskikh soedineniy AN SSSR.



L 32922-65 EWT(m)/EWP(t)/EWP(b) : IJP(c) JD/JG/JAJ/RM

ACCESSION NR: AP5007662

S/0020/65/160/006/1331/1334

AUTHOR: Rafikov, S. R. (Academician, AN KazSSR); Yergebekov, M. Ye.

TITLE: Synthesis and investigation of polyalkylenephosphonates of certain metals

SOURCE: AN SSSR. Doklady, v. 160, no. 6, 1965, 1331-1334, and insert facing p. 1332

TOPIC TAGS: polyalkylenephosphonic acid, polyalkylenephosphonate, alkali metal, alkali earth metal, heavy metal

ABSTRACT: A study has been made of the formation and properties of polymeric salts of polyalkylenephosphonic acids and various metals. Alkali metal salts were prepared from aqueous solutions of the acids and alkalis. Alkaline-earth- and heavy-metal salts were prepared from aqueous solutions of calcium, barium, lead, nickel, or zinc acetates or nitrates and polyalkylenephosphonic acids or their sodium or potassium salts. Most of the synthesized polymeric salts are heat resistant. Their thermomechanical curves are given in Fig. 1 of the Enclosure. The mechanical, electrical, and some other properties of the salts, given in tables, indicate that these polymers exhibit valuable properties, which are dependent on the organic/inorganic ratio in the molecule and on the metal. Orig. art. has: 3 figures and 4 tables.

Card 1/3

[B0]

L. 32922-65

ACCESSION NR: AP5007662

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR  
(Institute of Heteroorganic Compounds, Academy of Sciences SSSR); Institut  
khimicheskikh nauk Akademii nauk KazSSR (Institute of Chemical Sciences, Academy  
of Sciences KazSSR)

SUBMITTED: 02Jul64

ENCL: 01

SUB CODE: GC, MT

NO REF SOV: 003

OTHER: 002

ATD PRESS: 3206

Card 2/3

I 32922-65

ACCESSION NR: AP5007662

ENCLOSURE: 01

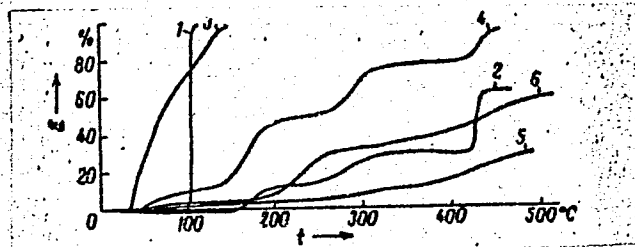


Fig. 1. Thermomechanical curves

1 - Polyethylene; 3 - polyalkylene-phosphonic acid, containing 14% P; polyalkylenephosphonates: 2 - Pb; 4 - Ba; 5 - Ca; 6 - 1/2 Ca (acid salt).

Card 3/3

RAFIKOV, ... , BERGANOVA, G.K.

... copolymerization of methylmethacrylate and styrene on amber.  
plast. mass. no. 284-7 '65. (MIRA 18:7)

RAFIKOV, S.R.; YERGEBEKOV, M.Ye.; CHELNOKOVA, G.N.; YERSHOVA, T.V.

Synthesis of oligomeric polymethylenephosphinic acids. Izv. AN  
SSSR. Ser. khim. no.3:526-527 '65. (MIRA 18:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Institut khimicheskikh nauk AN KazSSR.

L 41251-45 ENG(j)/EWT(m)/EPF(c)/EPF(h)-2/EPR/EWP(j)/T/EWA(h)/EWA(l) Pc-4/  
 EWT(j)/EWT(m)/EWT(l)-10/PeB/Pe-4 RPL WW/GG/RM  
 ACCESSION NR: AP5001897 S/0020/64/159/006/1361/1363

AUTHOR: Zaryatina, V.A.; Korshak, V.V. (Corresponding member AN SSSR); Solomatina,  
A.I.; Chikishev, Yu. G.; Tsotlin, B.L.; Rafikov, S.R.; Glazunov, P. Ya.

TITLE: Radiation synthesis of polymers with the base of trimeric cyclic dimethyl phosphinoborine

SOURCE: AN SSSR. Doklady, v. 159, no. 6, 1964, 1361-1363

TOPIC TAGS: radiation polymer synthesis, trimeric cyclic dimethyl phosphinoborine, irradiation effect, linear structure, polycyclic structure

ABSTRACT: It was shown recently (V. V. Korshak and N. I. Bekasova, Vyso-komolek. Soyed. 5, 1447 (1963)) that borasoles are polymerized under the action of ionizing radiation and form polymer products of polycyclic structure. It can be expected that irradiation may produce a similar effect in cyclic phosphinoborines. The authors selected for this purpose the trimeric cyclic dimethyl phosphinoborine. The irradiation was accomplished with the electronic accelerator of

Card 1/2

L 41351-65

ACCESSION NR: AP5001997

3  
the Institute for Physical Chemistry AN SSSR at 800 kv with a dose of  $6.5 \times 10^4$  rad/sec. With irradiation of  $4 \times 10^{18}$  ev/gm. sec, about 70% of the original monomer was transformed into polymer products of two types, one of which was insoluble in benzene, the other soluble. Their composition and thermomechanical properties were investigated. It was established that the products formed are polymers of a linear and of a polycyclic structure. Orig. art. has: 2 figures

ASSOCIATION: Institut elementoorganicheskikh soyedineniy, Akademii nauk SSSR (Institute of Organoelemental Compounds, Academy of Sciences, SSSR)

SUBMITTED: 07Jul64

ENCL: 00

SUB CODE: GC, NP

NR REF SOV: 001

OTHER: 002

  
Card 2/2

L 61725-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AP5013064

UR/0190/65/007/005/0928/0932  
678.01:54+678.86

37  
34  
B

AUTHORS: Rode, V. V.; Rafikov, S. R.; Yergebekov, M. Ye.; D'yachkov, G. A.;  
Vaskevich, D. N.; Konovalov, P. G.

TITLE: Thermooxidative degradation of polyalkylenephosphinic acids and their salts.  
22nd communication in the series "Chemical transformations in polymers"

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 5, 1965, 928-932

TOPIC TAGS: polymer, thermal degradation, oxidation, polyalkylphosphinic acid,  
polyethylene

ABSTRACT: The work was undertaken to extend the investigations of polyalkylene-  
phosphinic acids of different phosphorus content (A) and their salts (B), reported  
by S. R. Rafikov and M. Ye. Yergebekov (Dokl. AN SSSR, 160, 1331, 1965), and, in  
particular, to determine the thermal stability of these compounds at elevated  
temperatures. The thermooxidative degradation of the following compounds has been  
investigated: polyalkylphosphinic acids containing 1.7, 6.5, and 14% P and the Na,  
Ba, and Pb salts of 14% P acid. The results were compared with thermal degradation  
data for pure polyethylene. Thermooxidative degradations were carried out in air in

Card 1/2



L 61725-65

ACCESSION NR: AP5013064

the temperature interval 200-400C. Overall weight loss, the amount of water liberated, and activation energies are tabulated for compounds investigated and are compared with the corresponding data for polyethylene. It was found that poly-alkylphosphinic acids dehydrate at 200-250C and that the Na, Ba, and Pb salts of the 14% P acid decompose above 300C, the order of stability being Pb > Ba > Na. The introduction of 1.7% P into polyethylene greatly enhances its thermal stability. It is concluded that phosphorus-containing polymers are more stable than polyethylene. Orig. art. has: 2 tables and 5 graphs.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute for Hetero-Organic Compounds, AN SSSR)

SUBMITTED: 25Jul64

ENCL: 00

SUB CODE: OC,  
GC

NO REF SOV: 007

OTHER: 000

*awm*  
Card 2/2

L 61847-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/ENP(j)/EWA(h)/EWA(l) Pc-4/Pr-4/  
Fu-1 GG/JAJ/RM

ACCESSION NR: AP5018428

UR/0190/65/007/007/1179/1183 4/2  
66.095.26+678.745 39

AUTHOR: Chikishev, Yu. G.; Tsetlin, B. L.; Rafikov, S. R.

TITLE: Radiation-induced solid-state polymerization of diphenylvinylphosphine oxide

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 7, 1965, 1179-1183, and insert facing p. 1180

TOPIC TAGS: radiation polymerization, diphenylvinylphosphine oxide, solid state polymerization 19

ABSTRACT: The main kinetic features of the radiation-induced polymerization of diphenylvinylphosphine oxide - dependence of the polymerization rate on the dose, dose rate, temperature, and quality of the monomer single crystals - were investigated. X-ray diffraction, thermographic, and thermomechanical methods were employed. The radiation consisted of 0.8-1.0 Mev electrons. The process proceeds in a homogeneous medium until the monomer has been completely converted to the polymer, and solid solutions are formed in which the faceting and transparency of the original single crystals are retained. The linear variation of the polymerization rate with

Card 1/2

L 61847-65

ACCESSION NR: AP5018428

3

the dose rate and the low activation energy of the process conform to the usual pattern of radiation-induced polymerization of solid monomers. However, the absence of an aftereffect, the independence of the polymerization rate from the defectiveness of the crystals, and the preservation of transparency of the original crystals until the conversion of the monomer to the polymer was complete are features which set the polymerization of diphenylvinylphosphine oxide apart from other cases of solid-state radiation-induced polymerization. X-ray diffraction data led to the conclusion that a solid solution of the polymer in the monomer is formed in the course of the polymerization. "The authors thank P. Ya. Glazunov for enabling them to carry out this work and for the assistance rendered, and I. F. Manucharova for the thermographic measurements." Orig. art. has: 5 figures.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute of Organometallic Compounds, AN SSSR)

SUBMITTED: 28Jul64

ENCL: 00

SUB CODE: GC, SS

NO REF SOV: 004

OTHER: 002

Card 2/2

ZHURAVIEVA, I.V.; RODE, V.V.; RAFIKOV, S.R.

Thermodynamic parameter of polyarylate - tetrachloroethane interaction.  
Vysokom.sped. 7 no.7:1270-1272 51 '65.

(MIRA 18:8)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

RODE, V.V.; RAFIKOV, S.R.; YERGEBEKOV, M.Ye.; VASKEVICH, D.N.; KONOVALOV,  
P.G.; D'YACHKOV, G.A.

Thermal degradation of polyalkylenephosphinic acids and their  
salts. Vysokom. soed. 7 no.8:1452-1455 Ag '65. (MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 1151-66' EWT(m)/EPF(c)/EPF(n)-2/EWP(j)/T/EWA(h)/EWA(l) GG/RM  
ACCESSION NR: AP5022588 UR/0190/65/007/009/1489/1494  
66.095.26+678.86

AUTHORS: Chikishev, Yu. G.; Tsetlin, B. L.; Rafikov, S. R.

TITLE: On the mechanism of the radiation polymerization of diphenylvinylphosphine oxide. 3rd communication in the series "Radiation polymerization of tertiary phosphine oxides"

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1489-1494

TOPIC TAGS: radiation polymerization, polymer, resin, radical polymerization, dimethyl formamide, methylene chloride, tertiary phosphine oxide

ABSTRACT: The radiation polymerization of diphenylvinylphosphine oxide in various solvents was studied in order to elucidate the reaction mechanism and the effect of solvents on radiation polymerization. The investigation is a continuation of the work reported previously, Yu. G. Chikishev, B. L. Tsetlin, S. R. Rafikov, Yu. M. Polikarpov, T. Ya. Medved', M. I. Kabachnik (Vysokomolek. soyed., 7, 33, 1965) and the experimental procedure followed here was the same as that reported in the same reference. The rate of polymerization was studied as a function of radiation dosage and temperature in dimethylformamide and methylene chloride solutions. The

Card 1/3

L 1151-66

ACCESSION NR: AP5022588

9  
effect of adding benzoquinone, diphenylpiperylhdyrazine, ZnO, MgO, and SiO<sub>2</sub> on the polymerization rate was also studied. The experimental results were compared with data on polymerization rates for reactions initiated with tertiary butyl peroxide. The experimental results obtained in dimethylformamide and methylene chloride solutions are shown in Figures 1 and 2 respectively on the Enclosure. It is concluded that the radiation polymerization in the melt as well as in solution is of a radical nature. The authors thank M. I. Kabachnik and A. D. Abkin for their valuable discussions and advice. Orig. art. has: 1 table and 4 graphs.) 44,55

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute for Hetero-Organic Compounds, AN SSSR) 44,55

SUBMITTED: 28Jul64 44,55

ENCL: 02

SUB CODE: OC,GC

NO REF SOV: 006

OTHER: 005

Card 2/3

L 1151-66

ACCESSION NR: AP5022588

ENCLOSURE: 01

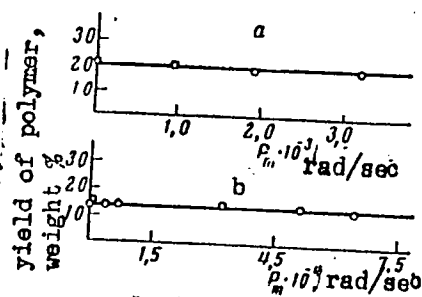


Fig. 1.

Dependence of polymer yield on radiation dosage in solution: a- dimethylformamide, b- methylene chloride. a- radiation dosage  $4.6 \times 10^6$  rad, temperature  $T = 25^\circ\text{C}$ ; b- radiation dosage  $7.7 \times 10^6$  rad,  $T = 20^\circ\text{C}$

Card 3/3

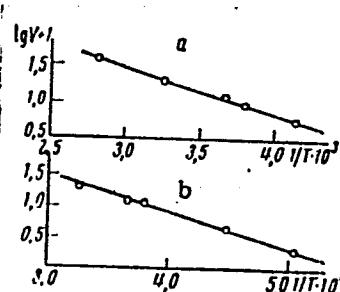


Fig. 2.

Dependence of the radiation polymerization rate of diphenylvinylphosphine oxide in solution on the irradiation temperature: a- dimethyl formamide; b- methylene chloride. a- radiation dosage  $3.8 \times 10^6$  rad; b- radiation dosage  $9.6 \times 10^6$  rad



L 2561-66 EWT(m)/EPF(c)/EWP(j)/T/ETC(m) WW/RM  
 ACCESSION NR: AP5022609 UR/0190/65/007/009/1609/1613  
 678.01:54+678.744 36  
 AUTHORS: Rafikov, S. R.; Chelnokova, G. N.; Artemova, Yu. V. 39  
 TITLE: Oxidative chlorophosphination of polyvinylacetate 1  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1609-1613  
 TOPIC TAGS: phosphorus, phosphorus organic compound, polyvinylacetate, polymer, chlorophosphination 44.55  
 ABSTRACT: The oxidative chlorophosphination of polyvinylacetate and the properties of its saponification products were investigated. The experimental procedure was similar to that reported by S. R. Rafikov, G. N. Chelnokova, M. E. Yergebekov, and T. V. Yerzhova (Vysokomolek. soyed., 7, 65, 1965). The composition and mechanical properties of chlorophosphinated polyvinylacetate and its saponification products are tabulated. The thermomechanical properties for polyvinyl (oxyacetoxy) phosphinic acids are shown graphically in Fig. 1 on the Enclosure. It was found that up to 12% phosphorus had been incorporated into polyvinylacetate by the reaction with phosphorus trichloride and oxygen. It is concluded that the phosphorus enters mainly into the principal chain of the polyvinylacetate. Orig. art.  
 Card 1/3

L 2561-66

ACCESSION NR: AP5022609

has: 3 tables and 3 graphs.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy AN SSSR (Institute for Heteroorganic Compounds, AN SSSR) 44,55

SUBMITTED: 23Oct64

ENCL: 01

SUB CODE: MT, GC

NO REF SOV: 003

OTHER: 003

Card 2/3

L 2561-66  
ACCESSION NR: AP5022609

ENCLOSURE: 01 0

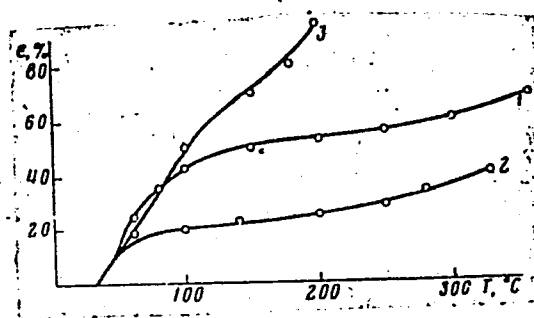


Fig. 1. Thermomechanical curves for compression of polyvinyl (oxyacetoxo) phosphinic acids:  
1,2- polymers containing 2.5 and 7.0% phosphorus respectively; 3- polyvinyl-acetate

Card 3/3

L 2925-66 ENT(m)/EPF(c)/ENP(j)/T/ETC(m) WW/RM

ACCESSION NR: AP5022610

UR/0190/65/007/009/1614/1618  
678.01:54+678.674

AUTHORS: Rode, V. V.; Zhuravleva, I. V.; Rafikov, S. R.; Korshak, V. V.;  
Vinogradova, S. V.; Pankratov, V. A.

TITLE: The high temperature degradation of polydihydroxydiphenylfluorentere-phthalate. 24th communication in the series "Chemical Transformation of Polymers"

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1614-1618

TOPIC TAGS: thermal degradation, thermal oxidation, organic compound, polymer/  
D 9 polyarylate

ABSTRACT: The thermal degradation and thermooxidation of polyarylate D-9 was investigated. This investigation is an extension of the previously published work of I. V. Zhuravleva, V. V. Rode, and S. R. Rafikov (Izv. AN SSSR, ser. khim., 1965, 269). The thermal degradation and thermooxidation were carried out over the temperature region from 325 to 500C by 25C intervals. Graphs for the kinetics of gas evolution during degradation and thermooxidation are presented. The composition of the thermooxidation-degradation products are tabulated. The

Card 1/3

L 2925-66

ACCESSION NR: AP5022610

experimental results obtained for the thermooxidation in air are shown graphically in Fig. 1 on the Enclosure. It is concluded that the thermooxidation degradation of polyarylate D-91 proceeds via a homolytic chain rupture accompanied by the evolution of CO<sub>2</sub>, CO, and H<sub>2</sub> gases. No induction period for the thermooxidation was observed. Orig. art. has: 2 tables and 6 graphs.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute for Heteroorganic Compounds, AN SSSR)

SUBMITTED: 23 Oct 64

ENCL: 01

SUB CODE: OC

NO REF SOV: 003

OTHER: 000

Card 2/3

L 2925-66

ACCESSION NR: AP5022610

ENCLOSURE: 01

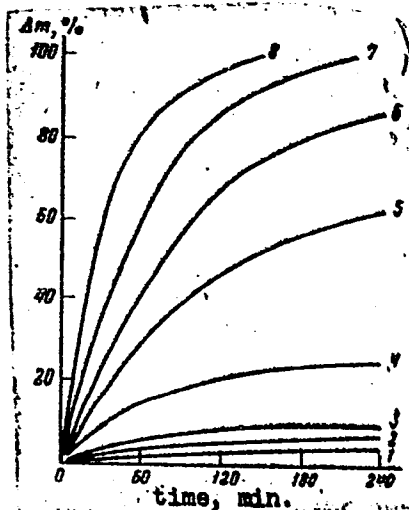


Fig. 1. Kinetics of weight loss of polyarylate D-9 during thermooxidation in air.  
1- 325°C; 2- 350°C; 3- 375°C; 4- 400°C; 5- 425°C;  
6- 450°C; 7- 475°C; 8- 500°C

PC  
Card 3/3

1. The first of the two main points of the report is that the  
2. the second point is that the report is a very good one.  
3. The third point is that the report is a very good one.  
4. The fourth point is that the report is a very good one.  
5. The fifth point is that the report is a very good one.  
6. The sixth point is that the report is a very good one.  
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9. The ninth point is that the report is a very good one.  
10. The tenth point is that the report is a very good one.

L 27314-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) DS/WW/RM  
 ACC NR: AP6008971 SOURCE CODE: UR/0190/65/007/011/1908/1912  
 AUTHORS: Korshak, V. V.; Rafikov, S. R.; Vinogradova, S. V.; Fomina, Z. Ya.  
 ORG: Institute for Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)  
 TITLE: Photochemical degradation of polyarylates in solution [78th communication in the series: Heterocyclic polyesters]  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 11, 1965, 1908-1912  
 TOPIC TAGS: polyarylate plastic, uv absorption, uv irradiation, polyester  
 ABSTRACT: This investigation was conducted to extend earlier published work by V. V. Rode, A. S. Yarov, and S. R. Rafikov (Vysokomolek. soyed., 6, 2061, 1964) and to study the nature of the molecular changes in polyarylates which result from uv irradiation of their chloroform and cyclohexanone solutions. The polyarylates investigated were derived from phenolphthalein and chloranhydrides of terphthalic and isophthalic acids following the procedure of V. V. Korshak, S. V. Vinogradova, and S. N. Salazkin (Vysokomolek. soyed., 4, 339, 1962). The experimental results are presented in graphs and tables (see Fig. 1). It was found that in dilute solutions the principal degradation reaction consists of rupture of the main chain of the polymer, leading to a decrease in the average molecular weight and viscosity of the polymer. At higher concentration, structuration processes predominate. The photodegradation of the  
 UDC: 678.01:54+678.674  
 Card 1/2



L-27314-66

ACC NR: AP6008971

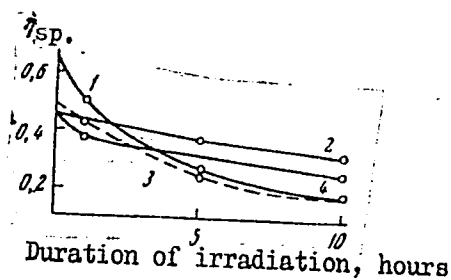


Fig. 1. Change in the specific viscosity during irradiation of 1% solutions of polyarylates in chloroform at  $20 \pm 2^\circ\text{C}$ . 1 - F-2c; 2 - F-2D; 3 - F-2c'; 4 - F-2'D. F-2c - polyarylate derived from terephthalic acid; F-2c' - low molecular weight polyarylate; F-2'D - F-2 plus 1.5% chlorinated diphenyl; F-2D - polyarylate derived from isophthalic acid.

polymer is more rapid in cyclohexanone solution than in chloroform solution, and it is sensitized by chlorinated diphenyl. Orig. art. has: 1 table and 5 graphs.

SUB CODE: 11/ SUBM DATE: 09Dec64/ ORIG REF: 003/ OTH REF: 001

Card 2/2

L 27303-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) DS/WW/RM  
 ACC NR: AP6008983 SOURCE CODE: UR/0190/65/007/011/1981/1984  
 AUTHORS: Zhuravleva, I. V.; Rode, V. V.; Rafikov, S. R.  
 ORG: Institute for Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)  
 TITLE: Formation of three-dimensional lattices in the thermal and thermooxidative aging of polyarylates / Second communication in the series "Aging and Stabilization of Polymers" /  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 11, 1965, 1981-1984  
 TOPIC TAGS: polymer, polyaryl plastic, polyarylate, thermal aging/ F-2 polyarylate, D-9 polyarylate  
 ABSTRACT: This investigation was conducted to extend earlier published work by V. V. Rode, I. V. Zhuravleva, S. R. Rafikov, V. V. Korshak, S. V. Vinogradova, and V. A. Pankratov (Vysokomolek. soyed. 7, 1614, 1965) and to study the thermal and thermooxidative aging of F-2 and D-9 polyarylates at low degrees of conversion. The experiments were carried out in the temperature interval of 250--450C. After exposure to the above temperatures for a period of 1--4 hours, the specimens were placed in tetrachloroethane. The soluble fraction of the polymer was subjected to viscosimetric, turbidimetric, light scattering, and molecular weight analysis. For the insoluble fraction, the equilibrium degree of swelling (Q) was ascertained, and the density of  
 Card 1/3 UDC: 678.01:54+678.674

L 27303-66

ACC NR: AP6008983

cross-linkages in the polymer were determined after T. Orofino and P. Flory (J. Chem. Phys., 26, 1067, 1957). The experimental results are presented in graphs and tables (see Fig. 1).

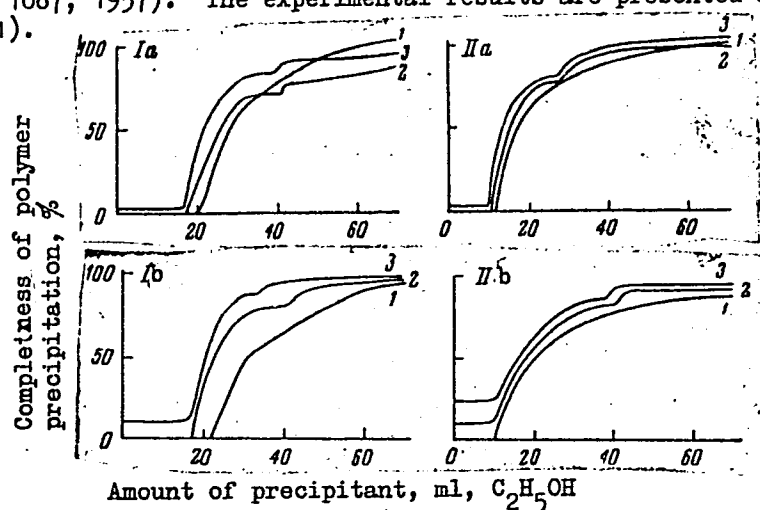


Fig. 1. Curves for the turbidimetric titration of the soluble polyarylate fraction after aging for 1 hour at different temperatures: I - polyarylate F-2; II - polyarylate D-9; a - thermoaging; b - thermooxidative aging; 1 - initial polymer; 2 - 275°C; 3 - 300°C.

Card 2/3

L 27303-66

ACC NR: AP6008983

It was found that polyarylate F-2 forms a nonswelling gel<sup>7</sup> more rapidly than polyarylate D-9. The molecular weight distribution curve of the soluble polymer fraction first increases and then, upon reaching a maximum, separates into two curves. Orig. art. has: 3 tables, 1 graph, and 5 equations.

SUB CODE: 11/ SUBM DATE: 29Dec64/ ORIG REF: 005/ OTH REF: 001

Card 3/3

*So*

RAFIKOV, S.R.; DEREVYANCHENKO, V.P.; ZHUBANOV, B.A.

Thermal stability of para- and meta-xylylenediamines. Izv.  
AN Kazakh. SSR. Ser. khim. nauk 15 no.1:30-37 Ja-Mr '65.  
(MIRA 18:12)

1. Submitted Sept. 30, 1964.

L 29000-66 EWT(m)/EWP(j) RM  
 ACC NR: AP6018839 SOURCE CODE: UR/0079/65/035/003/0591/0591  
 AUTHOR: Rafikov, S. R.; Chelnokova, G. N.; Artemova, Yu. V. 22  
 ORG: Institute of Heteroorganic compounds, AN SSSR (Institut elementoorganicheskikh  
 soedineniy AN SSSR)  
 TITLE: Reaction of carboxylic acid esters with phosphorus oxychloride  
 SOURCE: Zhurnal obshchey khimii, v. 35, no. 3, 1965, 591  
 TOPIC TAGS: alkyl radical, chloride, phosphate, ester, phosphorus chloride  
 ABSTRACT: Alkyl acetates react with phosphorus oxychloride to form alkyl dichloro-  
 phosphates and acetylchloride. The reaction was investigated for butyl acetate and  
 phosphorus oxychloride. The addition of phosphoric acid exerts an appreciable cata-  
 lytic effect upon this reaction. Orig. art. has: 1 formula. [JPRS]  
 SUB CODE: 07 / SUEM DATE: 22Oct64

Card 1/1

BLG

UDC: 547.29+546.185

ACC NR: AT6034054

(N)

SOURCE CODE: UR/0000/66/000/000/0088/0092

AUTHOR: Chikishev, Yu. G.; Rafikov, S. R.; Tsetlin, B. L.

ORG: Institute of Organometallic Compounds AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Characteristics of radiation polymerization of diphenylvinylphosphine oxide

SOURCE: Simpozium po radiatsionnoy khimii polimerov. Moscow, 1964. Radiatsionnaya khimiya polimerov (Radiation chemistry of polymers); doklady simpoziuma. Moscow, Izd-vo Nauka, 1966, 88-92

TOPIC TAGS: radiation polymerization, organic phosphorus compound, polymerization kinetics, reaction mechanism

ABSTRACT: The principles of radiation polymerization of unsaturated organophosphorus compounds were investigated in this study with molten diphenylvinylphosphine oxide. Products with relatively high molecular weights (higher than in chemical polymerization) were obtained. Kinetics study showed the monomer was completely converted to polymer. There was no induction period and the polymerization rate increased constantly up to 60-70% conversion. There was no gel effect as is usual in radiation polymerization. Polymerization rate was directly proportional to radiation dosage, so radiation yield and molecular weight were independent of dosage. Energy

Card 1/2

ACC NR: A16034054

of activation was 6.3 kcal/mol. Studies of polymerization in solution and with inhibitors and initiators confirmed the radical mechanism of polymerization. X ray study showed the monocrystalline structure was retained up to about 20% polymerization in the solid phase; by 50-60% conversion the polymer had no characteristic crystalline lattice. Solid phase polymerization has not been noted before. It has the characteristics of a homogeneous process. The polymer forms solid solutions with the monomer in all ratios. Orig. art. has: 5 figures.

SUB CODE: 07/ SUBM DATE: 25Jul66/ ORIG REF: 004/ OTH REF: 006

Card 2/2



Department of the Interior, Bureau of Land Management, 1015  
or the Secretary of the Interior, Dept. H&OR, 1015  
in 1976. (MEM 1-57)

1. Journal of Internal Medicine. 20 pages. AM Yodanis. Submitted June 1, 1966.

ACC NR: AT6034057

SOURCE CODE: UR/0000/66/000/000/0160/0164

AUTHOR: Morozov, Yu. L.; Vitushkin, N. I.; Glazunov, P. Ya.; Rafikov, S. R.;  
Khomutov, A. I.; Tsetlin, B. L.

ORG: Institute of Organometallic Compounds AN SSSR (Institut elementoorganicheskikh  
soyedineniy AN SSSR); Scientific Research Institute for Fiberglass (Nauchno-  
issledovatel'skiy institut steklovolokna); Institute of Physical Chemistry AN SSSR  
(Institut fizicheskoy khimii AN SSSR)

TITLE: Radiation gas phase graft polymerization on glass fibers

SOURCE: Simpozium po radiatsionnoy khimii polimerov. Moscow, 1964. Radiatsionnaya  
khimiya polimerov (Radiation chemistry of polymers); doklady simpoziuma. Moscow,  
Izd-vo Nauka, 1966, 160-164

TOPIC TAGS: radiation polymerization, graft copolymer, polymerization kinetics, glass  
fiber, acrylonitrile

ABSTRACT: The kinetics of radiation gas phase graft polymerization onto inorganic  
surfaces were investigated using X ray tube TRTs-3a as the radiation source,  
acrylonitrile as the monomer, and three types of glass fibers as substrate--  
1) conventional nonalkaline nonporous glass fiber, 6-7 micron diameter; 2) fine-pored  
(6-7 Å effective pore diameter) fiber made by treating the former with hydrochloric

Card 1/2

ACC NR: AT034057

acid; and, 3) coarse-pored fiber (40 Å effective pore diameter) made by acid treatment of sodium borosilicate fiberglass. Reaction rates were measured directly under the beam with the help of a McBain type device. Induction of the graft polymerization reaction on the nonporous fiber was slow; with the porous materials the induction period was short, with more polymer forming on the coarser material. However when the pores were filled, the graft polymerization reaction rate was about the same as on the nonporous surface. Initial polymerization rates on all three fibers reached limiting values with monomer concentrations--at acrylonitrile vapor pressures were well under 100 mm Hg. In the porous samples the process rate is a linear function of the sorbed monomer concentration; the energy of activation is about 3 kcal/mol. The polymerization rate is proportional to the square root of the dosage for nonporous substrates--glass fiber, aerosil, powdered silica gel. Radical reaction mechanism was confirmed. The polymerization rate is a linear function of the dosage for the fine pored material, probably due to steric hindrance inside the pores rather than to a different reaction mechanism. Reaction initiation on metallic oxide and silicate materials is probably associated with the formation of the oxygen ion radical under ionizing radiation. Orig. art. has: 4 figures.

SUB CODE: 07, 11/ SUBM DATE: 25Jul66/ ORIG REF: 007

Card 2/2

L 41327-66 TIT(m)/P(j)/T IJP(c) AM/RM  
ACC NR: AP6023430 SOURCE CODE: UR/0190/66/008/007/1226/1230

AUTHOR: Vorkhotin, M. A.; Andrianov, K. A.; Zhdanov, A. A.; Kurashova, N. A.;  
Rafikov, S. R.; Rode, V. V.

ORG: Institute of Hetero-organic Compounds, AN SSSR (Institut elementoorganicheskikh soedineniy AN SSSR)

TITLE: Thermal degradation of certain polymetallo-dimethylsiloxanes

SOURCE: Vysokomolekulyarnyye soedineniya, v. 8, no. 7, 1966, 1226-1230

TOPIC TAGS: polysiloxane, titanium compound, polymer degradation, organoaluminum compound, depolymerization, elastomer

ABSTRACT: The thermal degradation of polyaluminodimethylsiloxane (PAS) and polytitanodimethylsiloxane (PTS) (see Fig. 1) was studied in a vacuum at various temperatures. The predominant process in the thermal aging of the polymers was found to be depolymerization involving rupture of the Si-O bond and formation of hexamethylcyclotrisiloxane. The depolymerization begins after the gel formation maximum has been reached; at the same time, the aluminum atom in the elastomer chain slightly increases and the titanium atom considerably decreases the depolymerization rate as compared to polydimethylsiloxane. The gel formation maximum in polytitanodimethylsiloxane is shifted by 200° toward higher temperatures as compared to polyaluminodimethylsiloxane. In addition to the depolymerization, a homolytic rupture of Si-C and C-H bonds with the liberation of hydrogen, methane, and ethane takes place during the thermal degra-

Card 1/2

UDC: 678.01:54+678.84

L 41227-66

ACC NR: AP6023430

ation of polyalumino- and polytitanodimethylsiloxane. Orig. art. has: 2 figures and 2 tables.

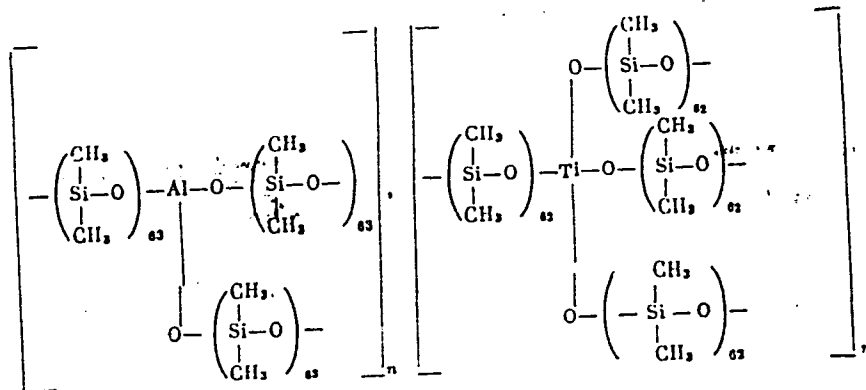


Fig. 1. Formulas of PAS and PTS.

SUB CODE: 07/ SUBM DATE: 16Jun65/ ORIG REF: 007/ OTH REF: 003

Card 2/2 MLP

ACC NR: AP7002938

(A)

SOURCE CODE: UR/0020/66/171/006/1352/1354

AUTHOR: Rafikov, S. R. (Academician AN KazSSR); Rode, V. V.; Verkhotin, M. A.;  
Andrianov, K. A. (Academician)

ORG: Institute of Heteroorganic Compounds, Academy of Sciences SSSR (Institut  
elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Mechanism of thermal stabilization of polydimethylsiloxane by titanium and  
iron compounds

SOURCE: AN SSSR. Doklady, v. 171, no. 6, 1966, 1352-1354

TOPIC TAGS: lubricant additive, lubricant, silicone lubricant, silicone lubricant,  
thermal stability

ABSTRACT:

A study was made of the mechanism of the effect of small amounts of titanium and iron compounds on the thermal degradation of polydimethylsiloxane (PS) in vacuum under isothermal conditions. The results were compared with previously obtained thermal degradation data on polytitanodimethylsiloxane (PTS) (PS containing Ti atoms in the backbone). The additives tested were tetrabutoxytitanium (BT), dibutoxytitanium bis(acetylacetonate) (AT), iron acetylacetonate (AI), titanium oxides (OT), and iron oxides (OI). The amount of BT, AT, or AI to be added was calculated so there was one equivalent of metal per 62 repeat units of PS, the same ratio as in the PTS.

Card 1/2

UDC: 547'128

ACC NR: AP7002938

BT, AT, and AI were introduced by mixing their solutions in dry benzene with a similar solution of PS, and subsequently evaporating the solvent. OT and OI were introduced by adding a ten-fold excess over theory to concentrated benzene solutions of PS, with subsequent drying and milling. The thermal degradation criteria used were weight loss, intrinsic viscosity of benzene-soluble fraction, amount of gel fraction, and amount of volatiles formed, all at 200—500C for 4 hr. Experimental results are given in graphic form. It was found that the additives have a beneficial effect on thermal stability similar to, but less pronounced than, that of the presence of titanium in the backbone at the onset (PTS). It was concluded that the beneficial effect of metal compounds is due to their reacting with the PS macromolecules in the process of thermal degradation to form a new high-thermal-stability, high-molecular-weight compounds containing metal atoms in the backbone. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: 02Apr66/ ORIG REF: 007/ OTH REF: 003/ ATD PRESS: 5112

Card 2/2

ACC NR: AP6032913

SOURCE CODE: UR/0360/66/000/005/0101/0102

AUTHOR: Rafikov, S. R.; Derevyanchenko, V. P.; Zhubanov, B. A.

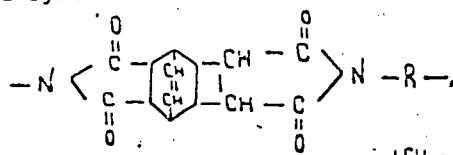
ORG: none

TITLE: Synthesis of polyimides from the adduct of maleric anhydride with beryene acid and various diamines

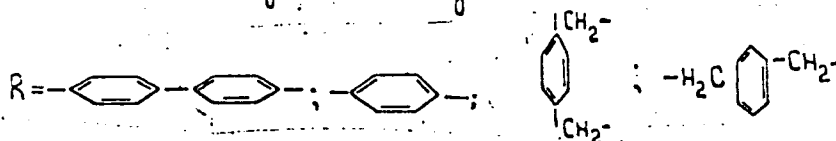
SOURCE: AN KazSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 101-102

TOPIC TAGS: polyimido acid, polyimide, heat resistant polymers, *heat resistant plastic, malic anhydride*

ABSTRACT: The authors have synthesized aromatic and aliphatic-aromatic polyimides having the groups



where



Card 1/2

UDC: 541.6:542.91



ADDITIONAL INFORMATION, T.Y.

of oxides of copper and iron with antimony. Zhur. neorg. khim.  
15 no.5:1710-1719 May '65. (MIR 18:6)

KASHAYEV, A.A.; RAFIKOV, T.K.

Methods of obtaining and calculating X-ray powder patterns. Trudy  
Alt. GMNII AN Kazakh. SSR 14:131-133 '63. (MIRA 16:9)  
(Metal powders) (X rays--Diffraction)

VASIL'YEVA, I.M.; LEBEDEVVA, L.A.; RAFIKOVA, F.M.

Interrelationship of water, carbohydrate and nitrogen  
metabolism of winter wheat in connection with the problem  
of frost resistance. Fiziol. rast. 11 no.5:897-905 S-O '64.  
(MIRA 17:10)

1. Biological Scientific Research Institute, Kazan State  
University.

S/031/62/000/006/069/117  
B149/B108

AUTHORS: Obolentsev, R. D., Timofeyev, V. D., Ratovskaya, A. A.,  
Baykova, A. Ya., Rafikova, L. G., Gavrilova, L. D.

TITLE: Group-composition of organic sulfur compounds in petroleum  
from the Bashkirskaia ASSR

PERIODICAL: Referativnyi zhurnal. Khimiya, no. 6, 1962, 527, abstract  
6M135 (Sb. "Khimiya seryaorgan. soyedineniy, soderzhashchikh-  
ya. v neft'yakh i nefteproduktakh. v. 4", M., Gostoptekhniz-  
dat., 1961, 103 - 112)

TEXT: The total sulfur, sulfide and elemental sulfur content of crude  
petroleum from various deposits were determined, the former by double  
combustion, the two latter by anode polarography with solid electrodes.  
In addition, the distribution of organic sulfur compounds according to  
fractions with onset of boiling at 120, 120 - 200, 200 - 250, and 250-300°C  
from a series of petroleums was studied. The sulfide sulfur in the  
fractions was determined by the iodine complex method, the mercaptan  
sulfur by the Grimms method. Elemental sulfur was found in only one of  
Card 1/2

Group-composition of ...

S/081/62/000/006/069/117  
B149/B108

54 analyzed petroleums (Stolyarovskoye deposit) amounting to 0.0200% its content increases with increasing boiling temperature of the fraction. The sulfide sulfur constitutes 20-40% of the total sulfur content. A considerable amount of mercaptan sulfur was found in the light petroleum products of the Ishimbay deposits (for Terekla Arta petroleum well No. 531 92.5% in the fraction with onset of boiling at 120°C, 85% in the 120-200°C fraction, 63% in the 200 - 250°C fraction and 47.5% in the 250 - 300°C fraction). Mercaptans are practically absent from the fractions of Devonian petroleum of the Shpakovskoye, Serafimovskoye and other deposits, as well as in the North-Western deposits. [Abstracter's note: Complete translation.]

✓

Card 2/2

ACCESSION NR: AT4040448

S/2933/64/006/000/0014/0025

AUTHOR: Obolentsev, R. D.; Baykova, A. Ya.; Rafikova, L. G.; Timofeyev, V. D.

TITLE: Group composition of sulfur organic compounds in crudes from the Ural-Volga oil bearing region

SOURCE: AN SSSR. Bashkirskiy fillal. Khimiya seraorganicheskikh soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh, v. 6, 1964, 14-25

TOPIC TAGS: Bashkir crude, Tatar crude, crude sulfur content, sulfide sulfur content, mercaptan sulfur content, elemental sulfur content, sulfur organic compound thermostability, sulfur organic compound, petroleum analysis

ABSTRACT: Double combustion, anode polarography on solid electrodes and polarography on a dropping mercury electrode were used to analyze, respectively, the contents of total sulfur, sulfide sulfur, mercaptan sulfur and elemental sulfur, in 155 samples of crudes from various Bashkir and Tatar deposits. Fractions to 120, 120-200, 200-250 and 250-300C were distilled on a TsiATIM-58 assembly, temperature in the column being maintained either above or 20-30C below the upper thermostability levels of the respective sulfur organic compound. Results are presented in several tables and indicate total sulfur ranging from 0.72 to 4.93%.

Card

1/2

ACCESSION NR: AT4040448

Sulfide sulfur ranged from 15 to 40% of total sulfur, mercaptan sulfur from 0.1 to 15.1%, while elemental sulfur was found only in crudes from the Sakmaro-Artinsk levels of the Ishimbay deposits. Distillates contained mainly sulfide sulfur (30-90% of total S). Mercaptan S was present primarily in distillates (to 200C) from four levels and ranged from 8.8 to 72.79% of total S. Elemental S was absent or present in small amounts (0.01 - 8.9% of total S). It is concluded that the thermostability of sulfur organic compounds contained in crudes depends on the age of the crude and the composition of the oil bearing formations. Orig. art. has: 7 tables and 3 graphs.

ASSOCIATION: Institut organicheskoy khimii, Bashkijskiy filial AN SSSR  
(Institute of Organic Chemistry, Bashkir Branch, AN SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: FP

NO REF SOV: 007

OTHER: 006

Card 2/2

RAFILI, S. S.

Cand. Tech. Sci.

Dissertation: "Certain problems of Protecting Long Power Transmission Lined"

6 Jan. 49

Power Engineering Inst imeni G. M. Krzhizhanovkiy Acad. Sci. USSR

SO Vecheryaya Moskva  
Sum 71



RAFILI, S.S.

USSR/Electricity - Telemetering  
Ohmmeters Jun 51

"An Analysis of Measurements By Distance Ohm-  
meters on Very Long Lines," S. S. Rafili, Cand  
Tech Sci, Power Eng Inst, Acad Sci Azerbaydzhan  
SSR

"Elektrichestvo" No 6, pp 51-58

Analyzes measurements made with distance ohm-  
meters for different operating conditions of  
long transmission lines. Points out a number of  
defects in the directional ohmmeter (Type MHO).  
Examines the feasibility of using filter-type

200T16

USSR/Electricity - Telemetering Jun 51  
(Contd)

directional ohmmeters for 2-stage distance pro-  
tection. Submitted 10 Jul 50.

200T16

USSR/Chemical Technology. Chemical Products and Their Application -- Treatment of solid mineral fuels, I-12

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5470

Author: Uporova, Ye. P., Rafikov, S. R.

Institution: Academy of Sciences Kazakh SSR

Title: Concerning Determination of Carboxyl and Phenol Groups in Coal

Original

Publication: Izv. AN KazSSR, Ser. khim., 1956, No 9, 23-32

Abstract: A new procedure has been worked out, and the effect of individual factors has been investigated, for determining the optimal conditions of the determination; the procedure consists in first determining the sum of acidic carboxyl and phenol groups by shaking a sample of comminuted coal (0.01 mm) for 4 hours with 0.1 N NaOH in 40% alcohol. Allowing to settle for 15 hours, filtering and washing the coal on the filter with warm water, and determining the residue of unreacted alkali, in the filtrate, by titration with 0.1 N HCl. Content of carbonyl groups is determined by an analogous procedure on addition

Card 1/2

USSR/Chemical Technology. Chemical Products and Their Application -- Treatment of solid mineral fuels, I-12

Abst Jcurnal: Referat Zhur - Khimiya, No 2, 1957, 5470

Abstract: to the sample of coal 0.1 N  $\text{Na}_2\text{CO}_3$  in 40% alcohol, while the content of phenolic hydroxyls is calculated by difference. On increase of the degree of carbonification the content of acidic groups in the coal decreases. It is shown that the values of heat of wetting of coal by alcohol or alcohol solutions of alkali, increase with increase in concentration of the alcohol. It is shown that determination of carboxyl groups of coal by means of calcium acetate does not yield reproducible results because of the different adsorption of acetic acid by coal of different type.

Card 2/2

RAFIKOV, S.T.; SUVOROV, B.V.; SOLOMIN, A.V.

Oxidation of organic compounds. Report No.14: Intermediate stages of incomplete oxidation of benzene in the vapor phase in the presence of tin vanadate. Izv.AN Kazakh.S.S.R.Ser.khim. no.1:58-66 '57. (MLRA 10:5)  
(Oxidation) (Benzene) (Tin vanadate)

REZNIK, A.Ye., dotsent; BAYTERYAKOVA, N.R., assistant; ODELEVSKAYA, N.N., assistant; FEDORENKO, P.N., assistant; DAVIDOV, V.Ya., assistant; YENAJEYEVA, D.Sh., ordinator; GRUMIS, L.P., ordinator; RAFIKOVA, K.A., ordinator; IBRAKIMOVA, A.M.

Clinical features of the influenza outbreak in Kazan in October 1957. Kaz.med.zhur. 40 no.1:34-37 Ja-F '59. (MIRA 12:10)

1. Iz kliniki infektsionnykh bolezney (zav. - dotsent A.Ye. Beznik) Kazanskogo meditsinskogo instituta.  
(KAZAN--INFLUENZA)

1ST AND 2ND GROUPS																										3RD AND 4TH GROUPS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>The preparation of butadiene from <i>sym</i>-dimethylethylene. B. A. Kazanskii and I. A. Rafilzon. <i>Sintet. Kauchuk</i> 1934, No. 1, 31-4. - From 3 to 4% of <i>sym</i>-dimethylethylene (I) is formed during the process of prep. Butadiene from alc. After treatment of I with Cl gas 2,3-dichlorobutane (II) is obtained and by removing 2 HCl from II butadiene is obtained. The authors passed II through an elec. oven at an av. temp. of 360-400°, using different catalysts. The best yield—30-40% butadiene—was obtained with BaCl<sub>2</sub>; 15.3% at 361-388° with NiCl<sub>2</sub> and 6.8% at 360-370° with Al<sub>2</sub>O<sub>3</sub> (all II was decompd.). The catalysts were poisoned during the reaction by the tar-like products.</p> <p style="text-align: right;">A. Pestoff</p>																																																			
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
<p>GROUPS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52</p>																																																			

POLAND/Chemical Technology - Chemical Products and Their  
Application. Synthetic and Natural Medicinal Sub-  
stances. Gelelicals and Medicinal Forms.

H.

Abs Jour : Ref Zhur - Khimiya, 10, 1959, 36007

Author : Rafinski, L.

Inst :

Title : The Obtaining of Aminobenzoic Acid by the Catalytic  
Reduction of p-nitrobenzoic Acid over Skeletal Ni-Cata-  
lyzer.

Orig Pub : Acta polon. pharm., 1958, 15, No 4, 293-294.

Abstract : Investigation has shown that Na, Ca and K salts of p-  
nitrobenzoic acid (I) are reduced over skeletal Ni-cataly-  
zer with difficulty. Good results (yield over 80%) were  
obtained at the reduction of an aqueous solution of an  
III<sub>4</sub> salt (duration of the reduction, about 9 hours) or an  
alcoholic solution of free I (duration, about 4 hours).  
-- I. Fedin.

Card 1/1

EXCERPTA MEDICA Sec 11 Vol 9/2 O.R.L.

Feb 56

420 RAFINSKI R. Klin. chorób Dziecięcych Akad. med. w Poznaniu. \*Wartość bronchoskopii w leczeniu gruźlicy dzieci i niemowląt. The value of bronchoscopy in the treatment of tuberculosis in children and in infants GRUŻLICA 1954, 22/5 (327-340) Illus. 7

The author performed over 3,000 bronchoscopies; there were no fatal cases; in only 2 cases were there complications, viz. subglottal oedema; one child developed diphtheria one day after bronchoscopy. In cases of oedema, intubation was performed. Within 2 yr. 986 bronchoscopies in 695 children were carried out; of those, in 442 instances pathological lesions were found, viz. infiltration: 93 cases; tuberculoma: 10 cases; granulation tissue and fistula: 120 cases; stenosis: 74 cases; purulent excretion: 92 cases; encroaching lymph nodes: 37 cases; ulceration: 16 cases.

Dobrowolsi - Warsaw (XV, 11)

RAFINSKI, R.; JACOBOWSKI, C.; GOLENIOWA, A.; RAFINSKI, R.; JACOBOWSKI, C.

Superior vena cava syndrome. Pediat. polska 32 no. 7: 603-604, 1957.

APPROVED FOR RELEASE: 03/14/2001  
 GRAZINSKI R. Klin. chorób Dziecięcych A. M. w Poznaniu. \*Wartość bronchoskopii w leczeniu gruźlicy dzieci i niemowląt. The value of bronchoscopy in the treatment of tuberculosis in children and in infants GRUŻLICA 1954, 22/5 (327-340) Illus. 7

Poznań Kierownik: prof. dr med. J. Groniowski. Adres: Poznań 12  
 Poznań ul. Marzaleń 14.

(LEWIS CAVAS, abnor.

of superior vena cava, manifest. a. h. (P. 11)



RAFINSKI, ROMAN

RAFINSKI, Teodor.; RAFINSKI, Roman.; CESARSKA-SZYMENDERA, Danuta.

Treatment of chronic pleuro-pulmonary fistulas. Polski tygod.  
lek. 12 no.28:1070-1076 ' July 57.

1. (Z Kliniki Chorob Dziecięcych A. M. w Poznaniu; kierownik:  
prof. dr med. T. Rafinski). Adres: Poznan, ul. Marii Magdaleny 14.  
Klinika Chorob Dziec. A. M.  
(LUNGS, fistula,  
pleuro-pulm., ther (Pol))  
(PLEURA, fistula,  
same)

RAFINSKI, Roman

Attempted therapy of bronchial asthma with so-called endo-bronchial block. Preliminary communication. Otolaryng. pol. 17 no.4:458-459 '63.

1. Z I Kliniki Chorob Dzieci AM w Poznaniu. Kierownik: prof. dr. T.Rafinski.

\*

RAFINSKI, R.

Simple method of bronchography in infants and children. *Pediat.*  
*polska* 27 no.12:1477-1486 Dec 1952. (CJML 24:2)

1. Of the Pediatric Clinic (Director--Prof. K. K. Jonscher, M.D.)  
of Poznan Medical Academy.

SZERESZEWSKA Halina; RAFINSKI, Roman

A case of pulmono-broncho-hepatic fistula. Polski tygod.lek.  
10 no.22:732-734 30 May '55.

1. Z I Kliniki Chorob Wewnetrznych A.M. w Poznaniu; kierownik:  
prof. dr St. Kwasniewski) Poznan, I Klinika Chor. Wewn. Ak.Med..  
ul. Długa 1/2

(LUNGS, fistula  
pulmono-broncho-hepatic, diag. & ther.)

(BRONCHI, fistula  
pulmono-broncho-hepatic, diag. & ther.)

(LIVER, fistula  
pulmono-broncho-hepatic, diag. & ther.)

(FISTULA  
pulmono-broncho-hepatic, diag. & ther.)

L 19771-65 EWT(m)/EPF(c)/EPA(w)-2/T Pr-4/Pab-10 RWH/WW

ACCESSION NR: AT5001015

S/2850/64/011/000/0147/0150

AUTHOR: Bekturov, Ya. A.; Kemeleva, Z. Kh.; Gutsalyuk, V. G.; Rafikov, S. R. 131

TITLE: Molecular characteristics of high molecular weight synthetic asphaltenes

SOURCE: AN KazSSR. Institut khimicheskikh nauk. Trudy, v. 11, 1964. Sintez i issledovaniye vysokomolekulyarnykh soyedineniy (Synthesis and research of high-molecular compounds), 147-150

TOPIC TAGS: asphaltene, petroleum refining, asphaltene molecular weight, Markussön method

ABSTRACT: Measurements of the osmotic pressure and viscosity of benzene and chlorobenzene solutions of synthetic asphaltenes showed that their main components are compounds with molecular weights of approximately  $30 \times 10^3$  and nearly spherical particle shapes. The synthetic asphaltenes were recovered by Markussön's method from petroleum residues which had been processed by oxidative dehydropolycondensation under commercial conditions. Cryoscopic measurements and osmometric values obtained with a membrane of very low porosity indicated the presence of low molecular weight fractions, which decreased the average molecular weight to  $4-5 \times 10^3$ . The measured properties were little affected by concentration or temperature, and aggregation of disaggregation of the particles apparently does not occur at the

L 19771-65

ACCESSION NR: AT5001015

experimental temperature range of 20-60C. "Ye. G. Davy\*dova took part in the  
experimental part of the work." Orig. art. has: 2 figures.

ASSOCIATION: Institut khimicheskikh nauk, Akademiya nauk Kazakhskoy SSR (Institute  
of Chemical Sciences, Academy of Sciences of the Kazakh SSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, FP

NO REF SOV: 007

OTHER: 007

Card 2/2

L 34146-65

EPF(c)/EPF(n)-2/ENG(j)/EMA(h)/ EWP(j)/EWT(m)/T/EMA(l)<sup>1C</sup>  
Pu-4/Peb GG/JAJ/RM/GS

Pc-4/Fr-4/

ACCESSION NR: AT4049851

S/0000/64/000/000/0126/0130

AUTHOR: Chao, Hsiang-tsun; Valetskiy, P. M; Vinogradova, S. V.; Glazunov, P. Ya.;  
Korshak, V. V.; Rafikov, S. R.; Tsetlin, B. L.

TITLE: Chemical transformations of polymers. XI. Radiation-induced chemical reactions of polyarylates

SOURCE: Khimicheskiye svoystva i modifikatsiya polimerov (Chemical properties and the modification of polymers); sbornik statey. Moscow, Izd-vo Nauka, 1964, 126-130

TOPIC TAGS: polyarylate, radiation chemistry, isophthalic acid, diphenylol propane, polyethylene terephthalate, polycarbonate, polyisobutylene, hydroquinone, ionizing radiation

ABSTRACT: For the investigation of the radiation-induced chemical reactions of polyarylates, a polyarylate (ID) obtained by polycondensation of isophthalic acid with diphenylolpropane, a polyarylate (IH) based on isophthalic acid and hydroquinone, and a polycarbonate (Makrolon) were used as test samples in both crystalline and amorphous forms. Irradiation was carried out at an electron accelera-

Card 1/3

L 34146-65

2

ACCESSION NR: AT4049851

tor voltage of 800 kv, a current density of 0.1-0.2 microampere (on the samples), and a dose of  $2-4 \times 10^{18}$  ev/cc.sec. The preparation of the different samples and the experimental procedure are described. The thermomechanical curves taken at a specific load of 0.8 kg/cm<sup>2</sup> and a heating rate of 75C per hour showed that polyarylates have a high stability toward the effect of ionizing radiation. The radiation yield of the gaseous products of the radiolysis of polyarylates is 0.02 mole/100 ev, which is much lower than the yield from irradiation of polyethylene terephthalate or polycarbonate. The molecular structure of polyarylates does not change significantly at doses on the order of  $10^{23}$  ev/cc. It is to be noted that, in the gaseous products of the radiolysis of polyarylate (ID) and polycarbonate (Makrolon) containing diphenylolpropane residues, even traces of methane are lacking. As is known, during the irradiation of polyisobutylene containing analogous groups ( $-C(CH_3)_2$ ), methane is one of the main components of the gaseous mixture. From the experimental data and from the fact that hydrogen evolution is stronger for ID than for IH, it is concluded that the isopropyl group in diphenylolpropane is stabilized by the two phenyl groups linked with it. The energy of radiation absorbed by this group migrates to the aromatic rings and is partially scattered, as a result of which hydrogen atoms split off from

Card 2/3



I. 34146-65

ACCESSION NR: AT4049851

the phenyl groups. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Heteroorganic compound institute, AN SSSR)

SUBMITTED: 31Aug62

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 005

OTHER: 002

Card 3/3

L 27093-66 EWF(j)/EWT(m)/T IJF(c) RM/WW  
ACC NR: AN6010585

SOURCE CODE: UR/0081/65/000/018/5019/5019

AUTHOR: Rode, V. V.; Zhuravleva, I. V.; Rafikov, S. R.

TITLE: Thermooxidation of phenolphthalein-based polyarylates.

SOURCE: Ref. zh. Khimiya, Abs. 185126

REF SOURCE: Vestn. tekhn. i ekon. inform. N.-1. in-t tekhn.-ekon. issled. Gos. kom-ta khim. prom-sti pri Gosplane SSSR, vyp. 12, 1964, 13-14

TOPIC TAGS: thermal decomposition, oxidation kinetics, polyester plastic

ABSTRACT: The process of thermooxidative destruction of heterochain phenolphthalein polyesters, isophthalic (1) and terephthalic acids (2) at temperatures of 350° to 500° on air and in a closed system under static conditions at an O<sub>2</sub> pressure of 120mm Hg column, is studied by the continuous weighing method. Kinetic curves for (1) and (2) weight loss were plotted. The rate of destruction exponentially depends on the temperature and is presented by an equation of the first order. The effective activation energy of destruction for (1) and (2) is equal 29.2 and 31.7 kcal/mol, respectively. The study of the thermal destruction of (2) in a closed system showed that the sole gaseous products are CO<sub>2</sub> and CO. The thermal destruction of (2)

Card 1/2

L 37093-66

ACC NR:AR6010585

results in the formation beside gases, of solid, low molecular substances (diphenyl, benzoic acid) and high-molecular residue, consisting of products of intermolecular reaction of cross-linked structures. Yu. Yershov.

SUB CODE: 07/ SUBM DATE: none

*ms*  
Card 2/2

POLIMBENOVA, F.A.; SIVKOV, B.V.; RAYKOV, E.P.; KOGANITSKIY, A.D.;  
BOGDANOV, Ye.I.

Some results of research on the synthesis and tests of the growth  
promoting substance "nikazin". Vest. AN Kazakh. SSR. 20 no.7:3-10  
Jl '64. (MIRA 17:11)

L 17944-65 EWT(m)/EDF(c)/EWP(j)/T Pc-4/Pr-4 RM  
 ACCESSION NR: AP5002562 5/0079/64/034/007/2230/2233

AUTHOR: Rafikov, S. R.; Yergebekov, M. Ye.

TITLE: Synthesis of p-methylbenzylphosphinic acid 7

SOURCE: Zhurnal obshchey khimii, v. 34, no. 7, 1964, 2230-2233

TOPIC TAGS: phosphinic acid, organic synthetic process, chlorinated organic compound

Abstract: The authors describe an attempt to synthesize p-methylbenzylphosphinic and p-xylylenediphosphinic acids by a more accessible method than the previously described action of triethyl phosphite on the corresponding chloro derivatives of p-xylene. The reaction of oxidative chlorination of p-xylene was studied for this purpose. The previously undescribed dichloride of p-methylbenzylphosphinic acid was produced and identified by conversion to the corresponding acid, its diethyl ester, and its lead salt. It was found that the introduction of the phosphinic group into one of the methyl groups of p-xylene prevents the chlorophosphination of the second methyl group. Orig. art. has 1 graph.

Card 1/2

L 17941-65

ACCESSION NR: AP5002562

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR  
(Institute of Organoelemental Compounds, Academy of Sciences, SSSR)

SUBMITTED 29Apr63

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 005

OTHER: 003

JPRS

Card 2/2

RAFIKOV, S.R., doktor khim. nauk

"Aging and stabilizing of polymers". Reviewed by S.R. Rafikov.  
Vest. AN SSSR 34 no.10:128-129 O '64.

(MIRA 17:11)

1. The first part of the document is a letter from the

author to the editor of the journal, in which the author  
states that the article is a translation of a paper  
published in the Soviet Union in 1985. The author  
also states that the paper was published in the journal  
"Soviet Science" and that it was translated into  
English by the author.



KORSHAK, Vasil'y Vladimirovich; VINOGRADOVA, Svetlana Vasil'yevna;  
RAFIKOV, S.R., doktor khim. nauk, otv. red.; LOSKUTOVA,  
I.P., red.

[Polyarylates] Poliarilaty. Moskva, Izd-vo "Nauka,"  
1964. 67 p. (MIRA 17:6)

1. Deystvitel'nyy chlen AN Kaz.SSR (for Rafikov).

L 34448-65

EPF(c)/EPF(n)-2/EMJ(j)/EMA(n)/EMT(m)/T/EMA(1)/EMP(j) PC-4/PR-4/YU-4/POB  
GG/JAJ/RM/GS

ACCESSION NR: AT4049850

S/0000/64/000/000/0122/0125

AUTHOR: Golubev, V. V.; Karpova, G. V.; Korshak, V. V.; Rafikov, S. R.;  
Tsetlin, B. L.; Chao, Hsiang-tsun

TITLE: Chemical transformations of polymers. X. Radiation-induced chemical  
reactions of mixed polyesters based on terephthalic and sebacic acids and ethylene  
glycol

SOURCE: Khimicheskiye svoystva i modifikatsiya polimerov (Chemical properties  
and the modification of polymers); sbornik statey. Moscow, Izd-vo Nauka, 1964,  
122-125

TOPIC TAGS: mixed polyester, terephthalic acid, sebacic acid, ethylene glycol,  
polyethylene sebacate, polyethylene terephthalate, vulcanization, dicarboxylic  
acid, ionizing radiation, xray vulcanization

ABSTRACT: The radiation-induced chemical reactions of polyesters obtained by  
polycondensation of dicarboxylic acids with diols were investigated. Polyethylene  
sebacate, polyethylene terephthalate and mixed polyesters obtained from a mixture  
of sebacic and terephthalic acids, containing 10, 20, 40, 50, 70 and 80 mol.%  
terephthalic acid, were used as test samples. Polycondensation was carried out  
in nitrogen, then in a vacuum (2mm) over a temperature range of 180-260C.

Card 1/2

L 34148-65

ACCESSION NR: AT4049850

The reduced viscosity of the resulting polyester varied from 0.3 to 0.5. Small disks 5 mm in diameter and 1 mm thick were investigated. The samples were irradiated in an X-ray apparatus of the TRTs-3 type at 80 kv, at a current of 200 ma, dose  $5 \times 10^{16}$  ev/cc/sec. The nature of the reactions was determined on the basis of the thermomechanical properties, and the variation in solubility and viscosity of the solutions was also determined. It was found that in many mixed polyesters, the rate of radiation vulcanization decreases gradually as the amount of terephthalic acid residues in the polymer increases. At low and medium radiation doses polyethylene terephthalate showed radiation-induced degradation. At higher doses ( $10^{23}$  ev/cc), it undergoes vulcanization, while for amorphous samples, the rate of radiation vulcanization is higher. The solubility of certain samples was unchanged after irradiation. The reduced viscosity of the cresol solution (0.2% by weight) of TSEG-82 (mixed polyester) increased from 0.31 to 0.44, while for polyethylene terephthalate it decreased from 0.50 to 0.30, which showed partial degradation. The effect of the degree of crystallinity of the sample on the character and rate of radiation-induced chemical transformations was also investigated and discussed. Orig. art. has: 2 figures.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Heteroorganic compounds institute, AN SSSR)

Card 2/3

L 35074-65 EPF(c)/EWG(j)/EWA(h)/EWP(j)/EWT(m)/T Pc-4/Pr-4/Peb JAJ/RM

ACCESSION NR: AR5006367

S/0081/64/000/024/S027/S027

SOURCE: Ref. zh. Khimiya, Abs. 24S155

33  
32

AUTHOR: Rafikov, S. R.; Hsu, Chi-p'ing

B+1

TITLE: Chemical transformations of polymers. IX. Effect of certain stabilizers on the light aging of polycapronamide<sup>15</sup>

CITED SOURCE: Sb. Vysokomolekul. soyedineniya. Khim. svoystva i modifik. polimerov. M., Nauka, 1964, 131-136

TOPIC TAGS: polymer, light aging, stabilizer, ionol, chlorine inorganic compound

TRANSLATION: Changes in the mechanical and physicochemical properties of a polycapronamide PK-4<sup>15</sup> film under UV-radiation were studied in varying conditions in the presence of the stabilizers Cu, Cr, Zn, and Cd chlorides, and 2,6-di-tert-butyl-4-methylphenol (ionol), 2,4-dioxybenzophenone, di-8-naphthylphenylenediamine, o-phenylbenzoxazole, and benzophenone. Addition of the metal chlorides does not affect the CO and H<sub>2</sub> evolution rate upon radiation by the total spectrum of a PKK-2 tube in a vacuum at 30°C, but radiation by near ultraviolet CuCl<sub>2</sub> has a strong dehydrating action. The mechanical properties of the film are preserved better

Card 1/2

L 35074-65

ACCESSION NR: AR5006367

upon the addition of Cu and Cr chlorides than in the control sample. These data indicate that it is incorrect to assume that erroneousess of the ideas about the amide bond is strengthened by the formation of chelate structures. Apparently the protective action of these salts is connected with their filtering properties. Organic stabilizers, especially typical antioxidants, are more effective protectors from light aging during the radiation of the film in a vacuum or in the presence of O<sub>2</sub>. They suppress gas evolution and secondary processes of film structuring. Films saturated with such stabilizers become less transparent in the visible and ultra-violet regions. This lowers their value for certain applications, e.g. for hot-house culture. For Report VIII see RZhKhim, 1963, 10S88. Authors' abstract

SUB CODE: MT, OC

ENCL: 00

Card 2/2

GLADYSHEV, Georgiy Pavlovich; RAFIKOV, S.R., akademik, otv.  
red.; GLAZYRINA, D.M., red.; KOVALEVA, I.F., red.;

[Polymerization of vinyl monomers] Polimerizatsiia vinil'-  
nykh monomero. Alma-Ata, Izd-vo AN Kaz.SSR, 1964. 321 p.  
(MIRA 17:7)

1. Akademiya nauk Kaz.SSR (for Rafikov).

1. The first of these is the

fact that the United States has a long history of  
intervention in the affairs of other countries.  
(U.S. State Dept. Bulletin, 1947, p. 104)

2. The second of these is the

SEMBAYEV, D. Kh.; SUVOROV, B.V.; RAFIKOV, S.R., akademik

Oxidizing ammonolysis of methyl vinyl ketone. Dokl. AN SSSR 155  
no. 4:868-871 Ap '64. (MIRA 17:5)

1. Institut khimicheskikh nauk AN Kazakhskoy SSSR. 2. AN Kazakhskoy  
SSSR (for Rafikov).



LESOV, A.V.; GLADYON, P. Ya.; MOROZOV, Yu.L.; PAVLAR, I.I.; POLAK,  
I.S.; RAFIKOV, S.R., akademik; TSETLIN, E.I.

Synthesis of semiconducting combined materials by the method  
of gas-phase grafted radiation polymerization. Dokl. AN SSSR  
158 no.1:141-142 S-O '64 (MIRA 17:2)

1. AN KazSSR (for Rafikov).

ZAMYATINA, V.A.; KORSHAK, V.V.; SOLOMATINA, A.I.; CHIKISHEV, Yu.G.;  
TSETLIN, B.L.; RAFIKOV, S.R.; GLAZUNOV, P.Ya.

Radiation synthesis of polymers based on trimeric cyclic dimethyl-  
phosphinoborane. Dokl. AN SSSR 159 no.6:1361-1363 D '64  
(MIRA 18:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen  
korrespondent AN SSSR (for Korshak).

L 53752-65 BWT(m)/ETI(c)/DPL/WWP( )/A/DWA(c) P-4/Tr-4/Tr-4 DFL WW/  
JE/R:

ACCESSION NR: AP5012827

UR/0360/65/000/001/0030/0037

AUTHOR: Rafikov, S. R.; Derevyanchenko, V. P.; Zhubanov, B. A. 37  
35

TITLE: Study of the thermal stability of para- and meta-xylylenediamine 7 8

SOURCE: AN KazSSR. Izvestiya. Seriya khimicheskikh nauk, no. 1, 1965, 30-37

TOPIC TAGS: xylylenediamine, amine polycondensation, polyamine, deamination, polymer, reactive hydrocarbon, xylene

ABSTRACT: The purpose of the study was to determine the stability of *m*- and *p*-xylylenediamine at 250-270°C (i.e., at temperatures close to those used in the synthesis of polyamides) and to investigate the kinetics and mechanism of degradation of these diamines. The deamination rate was measured by titrating the ammonia evolved by the xylylenediamines. The rate constants of deamination of the meta isomer were found to be considerably lower than those of the para isomer. Potentiometric titration of the solid decomposition residue with 0.1 *N* perchloric acid in glacial acetic acid showed that the thermal degradation of the meta isomer formed large amounts of secondary amines, and that of the para isomer formed large quantities of tertiary amines (low molecular polyamines). Electron spin resonance spectra showed that no free radicals were present in the frozen reaction products. It

Card 1/2

L 53752-65

ACCESSION NR: AP5012827

2

was concluded that the process of deamination of meta- and para-xylylenediamine are not radical reactions, but proceed via an ionic mechanism. This conclusion is also confirmed by the fact that no hydrogen was present in the gaseous reaction products. The authors recommend the use of thoroughly purified xylylenediamines in the process of polycondensation, since the presence of traces of secondary amines in the diamines accelerates the deamination of primary amino groups which forms polyamines. "The authors thank D. V. Sokol'skiy and N. I. Shcheglova for providing the diamines used in the study." Orig. art. has: 3 figures and 5 tables.

ASSOCIATION: none

SUBMITTED: 30Sep64

ENCL: 00

SUB CODE: OC, TD

NO REF SOV: 006

OTHER: 003

Card 2/2

L 23227-66

EWT(m)/EWP(j)/T

IJP(c)

WW/RM

ACC NR: AP6013596

SOURCE CODE: UR/0191/65/000/002/0004/0007

AUTHOR: Rafikov, S. R.; Serganova, G. K.

ORG: none

TITLE: Graft polymerization of methyl methacrylate (MMA) and styrene on amber

SOURCE: Plasticheskiye massy, no. 2, 1965, 4-7

TOPIC TAGS: polymerization, graft copolymer, methylmethacrylate, styrene, vinyl plastic, polymer, vinyl chloride, electric property

ABSTRACT: The graft polymerization of certain vinyl monomers on amber, a natural trimeric polymer containing small quantities of soluble fractions was studied. Copolymers of amber with MMA and styrene were prepared and investigated. Vinyl acetate, acrylonitrile, and vinyl chloride do not form copolymers with amber under the conditions studied. Graft copolymers were prepared by the initiation of polymerization of the monomer by macro radicals formed during the decomposition of the peroxide groups of amber oxidized by atmospheric oxygen. Various mechanical and electrical properties of the graft copolymers of methyl methacrylate and amber, and styrene and amber are presented. The authors thank L. A. Igonin and his laboratory co-workers for determination of the thermomechanical and electrical characteristics of copolymers. Orig. art. has: 3 figures and 4 tables. [JPRS]

SUB CODE: 07, 11 / SUBM DATE: none / ORIG REF: 007

Card 1/1

UDC: 678.744.335-134.622

L 43074-66 SWF(m)/FWP(1)/T IJP(c) PM/ST/MD  
ACC NR: AP6014705 (A) SOURCE CODE: UR/0360/65/000/004/0082/0094

AUTHOR: Yergozhin, Ye. Ye.; Rafikov, S. R.; Shostak, F. T.

ORG: none

TITLE: Chemical transformations of polymers. Communication 28. Synthesis and analysis of cross-linked polynitro(styrene-co-divinylbenzene)

SOURCE: AN KazSSR. Izvestiya. Seriya khimicheskikh nauk, no. 4, 1965, 82-94

TOPIC TAGS: polystyrene, copolymer, thermal stability, polyvinyl, nitration, organic nitro compound, vinyl polymer, polymer structure

ABSTRACT: In order to clarify the structure of cross-linked polynitro(styrene-co-DVB), the authors investigated the nitration of this copolymer under various conditions and some of the properties of the mononitro derivatives produced. The copolymer was synthesized by adding 0.68 g of PVA in 120 ml distilled water to a mixture of 20 g styrene, 6 g DVB, and 0.4 g benzoyl peroxide and heating to 80C for 5 hr with constant stirring. Nitration of the copolymer was carried out at -5C with mixtures of nitric and sulfuric acid varying in composition from pure HNO<sub>3</sub> to 229 g H<sub>2</sub>SO<sub>4</sub> + 101 g HNO<sub>3</sub>, and the effect of the proportions of nitric and sulfuric acid on nitration kinetics and the final degree of nitration was investigated; the best results

Card 1/2

L 43074-66

ACC NR: AP6014705

2

were obtained at a molar nitric/sulfuric ratio of 1/0.87. The swelling of both the original copolymer and the nitrated products was studied in pyridine, dichloroethane, p-xylene, benzene, chloroform, and cyclohexane. Thermographic analysis of the copolymer and its nitrated derivatives, as well as infrared and x-ray structural analyses of the products, was also carried out. The nitro group in the nitrated derivative was found to be mainly in the para position. Although the amorphous structure of the original copolymer remained unchanged after nitration, the thermal stability was lower. The authors express their gratitude to Yu. A. Kushnikov and A. Ye. Lyuts for assistance in discussing the IR spectra. Orig. art. has: 4 tables, 6 figures, and 2 formulas.

SUB CODE: 07/ SUBM DATE: 21May65/ ORIG REF: 025/ OTH REF: 014

Card 2/2 h=

L 30039-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4/Pt-10/  
Pu-4 GG/RM/WW

ACCESSION NR: AP5003825

S/0190/65/007/001/0033/0038

AUTHORS: Chikishev, Yu. G.; Tsetlin, B. L.; Rafikov, S. R.; Polikarpov, Yu. M.;  
Medved', T. Ya.; Kabachnik, M. I.

TITLE: Radiation polymerization of diphenylvinylphosphine oxide in a melt

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 1, 1965, 33-38

TOPIC TAGS: diphenylvinylphosphine, polymerization, radiation polymerization/  
ARKh 200 80 x ray apparatus

ABSTRACT: Radiation polymerization of diphenylvinylphosphine oxide (ODFVF) obtained as described by M. I. Kabachnik, T. Ya. Medved', M. Polikarpov, and K. S. Yudina (Izv. AN SSSR, Otd. khim. n., 1961, 2029) was investigated. The polymerization was studied as a function of radiation intensity (25-3500 rad/sec), radiation duration and temperature (118-200C) at a pressure of  $10^{-5}$ - $10^{-6}$  mm in an x-ray apparatus of the type ARKh-200-80. The polymer specimens were tested for composition, density, infrared absorption spectrum, thermomechanical properties, viscosity, and molecular weight after distilling away the monomer at 160-170C for 10-60 hours. The ODFVF precipitate is a white amorphous powder with a specific gravity of 1.220 (monomer 1.267), a pouring temperature of 230-250C, and a molecular weight of about 35-45000  
Card 1/4

59  
57  
B



L 30039-65

ACCESSION NR: AP5003825

2

for the reprecipitated polymer and 16-24000 for the distilled polymer. The thermo-mechanical compression curves for the polymer are shown in Fig. 1 on the Enclosure, and the infrared absorption curves for the polymer and monomer are shown in Fig. 2 on the Enclosure. It was found that the yield changed linearly with time, showing different slopes for different radiation intensities (0-60% yield in 70 minutes for 800 rad/sec and 0-60% in 110 minutes for 400 rad/sec). The polymerization rate was also linear with radiation intensity (0-4 by weight %/min<sup>-1</sup> as radiation was changed from 0-4000 rad/sec). The yield by weight and the molecular weight were found to be independent of radiation intensity and were 20% and 16000 respectively at a total radiation of 0.12 Mrad at 130C for the distilled ODFVF. The polymerization rate as a function of temperature is shown in Fig. 3 on the Enclosure. Activation energy was significant at 6.3 Kcal/mole at temperatures of 120-200C. The kinetic relations for the polymerization process differ from all other described radiation polymerization processes based on either the radical or ion mechanism. Orig. art. has: 7 figures.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Organic Compounds, AN SSSR)

SUBMITTED: 26Feb64

ENCL: 02

SUB CODE: OC

NO REF SOV: 009

OTHER: 004

Card 2/4

L 30039-65

ACCESSION NR: AP5003825

ENCLOSURE: 01

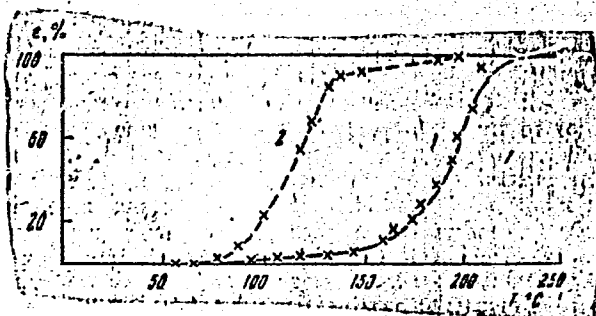


Fig. 1. Thermomechanical compression of ODFVF 100-g load, 4-mm diameter, 750 per hour. 1- reprecipitated, 2- distilled polymer

Card 3/4

L 30039-65

ACCESSION NR: AP5003825

ENCLOSURE: 02

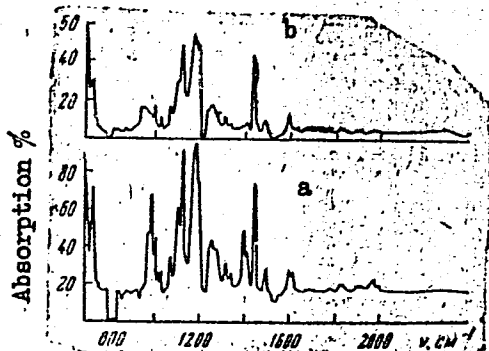


Fig. 2. IR spectrum. a- monomer, b- polymer (10% n solution in chloroform)

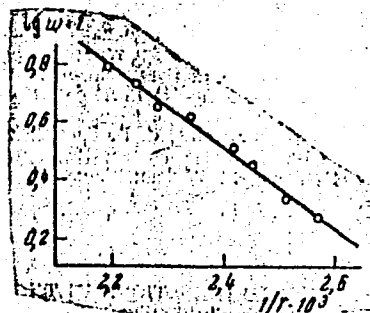


Fig. 3. Temperature dependence of ODFVF polymerization (at 150 rad/sec)

Card 4/4

L 35467-65 EPF(c)/EWP(j)/EWT(m)/T Pc-4/Pr-4 RM

ACCESSION NR: AP5003829

S/0190/65/007/001/0065/0069

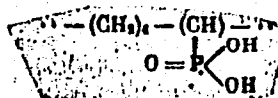
AUTHORS: Rafikov, S. R.; Chelnokova, G. N.; Yergebekov, M. Ye.; Yerashova, T. V. <sup>26</sup><sub>25</sub>

TITLE: Synthesis and study of polyalkylenephosphonic acids 1

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 1, 1965, 65-69

TOPIC TAGS: polyethylene, chlorophosphination, polymer

ABSTRACT: Oxidative chlorophosphination and the properties of polyalkylene-phosphonic (PAP) acids obtained by saponification of the products of oxidative chlorophosphination of high-pressure polyethylene containing 3-20% P were investigated.  $PCl_3$  was added in portions to the polyethylene (at  $\approx 60^\circ C$ ) while oxygen was passed through the bottom of the reactor. After a 2-hour hydrolysis of the reaction products, the chemical and thermomechanical properties of the products were investigated. It was found that the highest P content (20.5%) could be obtained by adding the  $PCl_3$  in portions at a high oxygen flow rate (35-50 liter/hr). This PAP acid has the structure



Card 1/3

I. 35467-65

ACCESSION NR: AP5003829

Polymers containing less than 13% P were found insoluble in water or brine but were soluble with more than 13% P. The effects of P concentration on the viscosity of PAP acid solutions were measured (see Fig. 1 on the Enclosure) and were found to be dependent on the aging time. Titration with KOH proceeded similarly to that of n-methylbenzylphosphonic acid (pH = 12 for 1.2 ml of 0.1 n KOH). The mechanical properties of PAP acids prepared at 1200 and 50 atm were found to be as follows: P = 0%, tensile strength = 130 kg/cm<sup>2</sup>, elongation = 460%; 9%, 150 kg/cm<sup>2</sup>, 250%; 14%, 250 kg/cm<sup>2</sup>, 190%. The elasticity upon heating and the weight loss during heating to 3000 were found to decrease with increased P content. The UV spectrum showed maximum absorption at 37 800 cm<sup>-1</sup>, while the IR-spectra showed wide bands in the 1000-1200 and 2300-2380 cm<sup>-1</sup> regions. Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy, AN SSSR (Institute of Organic Compounds, AN SSSR)

SUBMITTED: 03Mar64

ENCL: 01

SUB CODE: OC

NO REF SOV: 002

OTHER: 004

Card 2/3

L 35467-65

ACCESSION NR: AP5003829

0 ENCLOSURE: 01

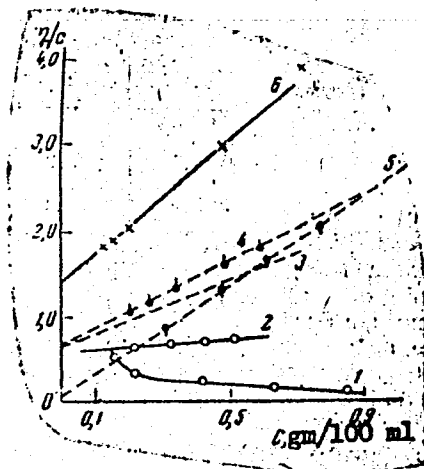


Fig. 1. Viscosity versus P concentration for PAP acid solutions  
 1 - PAP acid, 14.5% P in  $H_2O$ ; 2 - same in 0.15 n KOH;  
 3 - fresh PAP, 17% P in 0.15 n; 4 - same after 15 days;  
 5 - same after 30 days; 6 - 16% P, in 0.15 n KOH

Card 3/3

L 38624-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AP5008105

S/0062/65/000/002/0269/0275

AUTHOR: Zhuravleva, I. V.; Rode, V. V.; Rafikov, S. R.

TITLE: Chemical reactions of polymers. Report No. 19. Thermal degradation of polyarylates synthesized from phenolphthalein and terephthalic or isophthalic acid

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1965, 269-275

TOPIC TAGS: thermal degradation, polymer degradation, polyarylate degradation, phenolphthalein polymer, terephthalate polymer, isophthalate polymer, heterochain polyester

ABSTRACT: The purpose of this work was to establish the composition and relative proportions of the degradation products of polyarylates which were heterochain polyesters of phenolphthalein and isophthalic acid (F-1) or terephthalic acid (F-2), and to determine the probable mechanism of the degradation. The low-molecular products were separated by chromatography on aluminum oxide. The infusible solid degradation product consists of a carbonized three-dimensional skeleton similar to some types of bituminous coals; the low-molecular products include biphenyl, triphenyl-methane, benzoic acid, and traces of phenol and phenolphtha-

Card 1/2

L 38624-65

ACCESSION NR: AP5008105

lein; the only gaseous degradation products are carbon dioxide and monoxide. From a kinetic analysis of the evolution of gas it was concluded that the process occurs as a parallel-consecutive reaction. The theoretically calculated rate constants of the steps of these parallel-consecutive reactions are in good agreement with the experimental data. The effective activation energies of the degradation processes were determined. An interpretation of the mechanism of the process is given. "The authors thank V. V. Korshak, S. V. Vinogradova, and S. N. Salazkin for supplying the polymer samples." Orig. art. has: 6 figures, 5 tables, and 4 formulas.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR  
(Institute of Organometallic Compounds, Academy of Sciences, SSSR)

SUBMITTED: 14Feb64

ENCL: 00

SUB CODE: OC

NO REF SOV: 007

OTHER: 001

Card 2/2 *ps*



L 48977-65 EWT(n)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5009662

UR/0062/65/000/003/0526/0527

24  
22  
B

AUTHOR: Rafikov, S. R., Yergebekov, M. Ye., Chelnokova, G. N., Yershova, T. V.

TITLE: Synthesis of oligomeric polymethylenephosphonic acids 7

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1965, 526-527

TOPIC TAGS: polymethylenephosphonic acid synthesis, oxidative chlorophosphonation, paraffin wax, cyclohexene, polymer crystallinity, infrared spectrum

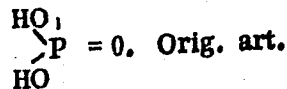
ABSTRACT: A study was made of certain factors influencing the extent of the reaction of oxidative chlorophosphonation of paraffin waxes<sup>5</sup> and the properties of the oligomeric polymethylenephosphonic acids obtained, containing various quantities of phosphonic acid groups in the molecule, were investigated. The reaction was carried out with paraffin wax of M.W. 500,  $\text{PCl}_3$ , cyclohexene (as catalyst), and oxygen. The acid chloride formed was hydrolyzed, and polymethylenephosphonic acids with various contents of phosphorus in the molecule were obtained. X-ray analysis showed that the introduction of up to 4% phosphorus in the form of phosphonic acid groups into the wax decreases the crystallinity of the original substance only slightly, whereas polymers containing 7% phosphorus have almost no crystallinity, and samples containing 11% phosphorus and more are completely amorphous. The IR spectra showed broad bands at  $2300\text{-}2400\text{ cm}^{-1}$ , characteristic of OH groups linked to

Card 1/2

L 48977-65

ACCESSION NR: AP5009662

phosphorus, and at  $960-1200\text{ cm}^{-1}$ , characteristic of the groups  
has: 1 table.



ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR  
(Institute of Organometallic Compounds, Academy of Sciences, SSSR); Institut khimi-  
cheskikh nauk Akademii nauk KazakhSSR (Institute of Chemical Sciences, Academy of  
Sciences, Kazakh SSR)

SUBMITTED: 28Feb64

ENCL: 00

SUB CODE:OC, CC

NO REF SOV: 001

OTHER: 001

Card

2/2

SUVOROV, H.V.; RAFIKOV, S.R.; KAGARLITSKIY, A.D.

Oxidative ammonolysis of organic compounds. Usp. khim. 34 no.9:1526-  
1549 S '65. (MIRA 18:10)

1. Institut khimicheskikh nauk AN KazSSR.

BAFIKOV, S.R., CHELNOKOVA, G.N.; ARTEMOVA, Yu.V.

Reaction of carboxylic acid esters with phosphoryl chloride.  
Zhur. ob. khim. 35 no.3:591 Mr '65. (MIRA 18:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 32922-65 EWT(m)/EWP(t)/EWP(b) : IJP(c) JD/JG/JAJ/RM

ACCESSION NR: AP5007662

S/0020/65/160/006/1331/1334

AUTHOR: Rafikov, S. R. (Academician, AN KazSSR); Yergebekov, M. Ye.

TITLE: Synthesis and investigation of polyalkylenephosphonates of certain metals

SOURCE: AN SSSR. Doklady, v. 160, no. 6, 1965, 1331-1334, and insert facing p. 1332

TOPIC TAGS: polyalkylenephosphonic acid, polyalkylenephosphonate, alkali metal, alkali earth metal, heavy metal

ABSTRACT: A study has been made of the formation and properties of polymeric salts of polyalkylenephosphonic acids and various metals. Alkali metal salts were prepared from aqueous solutions of the acids and alkalis. Alkaline-earth- and heavy-metal salts were prepared from aqueous solutions of calcium, barium, lead, nickel, or zinc acetates or nitrates and polyalkylenephosphonic acids or their sodium or potassium salts. Most of the synthesized polymeric salts are heat resistant. Their thermomechanical curves are given in Fig. 1 of the Enclosure. The mechanical, electrical, and some other properties of the salts, given in tables, indicate that these polymers exhibit valuable properties, which are dependent on the organic/inorganic ratio in the molecule and on the metal. Orig. art. has: 3 figures and 4 tables.

Card 1/3

[B0]

L. 32922-65

ACCESSION NR: AP5007662

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR  
(Institute of Heteroorganic Compounds, Academy of Sciences SSSR); Institut  
khimicheskikh nauk Akademii nauk KazSSR (Institute of Chemical Sciences, Academy  
of Sciences KazSSR)

SUBMITTED: 02Jul64

ENCL: 01

SUB CODE: GC, MT

NO REF SOV: 003

OTHER: 002

ATD PRESS: 3206

Card 2/3

I 32922-65

ACCESSION NR: AP5007662

ENCLOSURE: 01

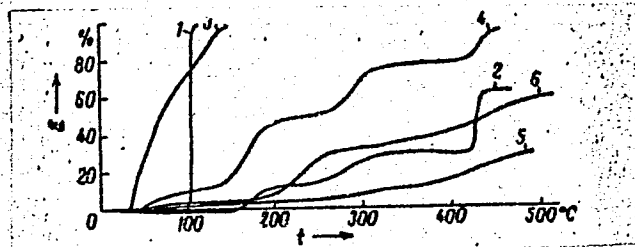


Fig. 1. Thermomechanical curves

1 - Polyethylene; 3 - polyalkylene-phosphonic acid, containing 14% P; polyalkylenephosphonates: 2 - Pb; 4 - Ba; 5 - Ca; 6 - 1/2 Ca (acid salt).

Card 3/3

RAFIKOV, ... , BERGANDOVA, G.K.

... copolymerization of methylmethacrylate and styrene on amber.  
plast. mass. no. 284-7 '65. (MIRA 18:7)



RAFIKOV, S.R.; YERGEBEKOV, M.Ye.; CHELNOKOVA, G.N.; YERSHOVA, T.V.

Synthesis of oligomeric polymethylenephosphinic acids. Izv. AN  
SSSR. Ser. khim. no.3:526-527 '65. (MIRA 18:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Institut khimicheskikh nauk AN KazSSR.

L 41250-45 ENG(j)/EWT(m)/EPF(c)/EPF(h)-2/EPR/EWP(j)/T/EWA(h)/EWA(l) Pc-4/  
RPL WW/GG/RM  
ACCESSION NR: AP5001897 S/0020/64/159/006/1361/1363

AUTHOR: Zaryatina, V.A.; Korshak, V.V. (Corresponding member AN SSSR); Solomatina,  
A.I.; Chikishev, Yu. G.; Tsotlin, B.L.; Rafikov, S.R.; Glazunov, P. Ya.

TITLE: Radiation synthesis of polymers with the base of trimeric cyclic dimethyl phosphinoborine

SOURCE: AN SSSR. Doklady, v. 159, no. 6, 1964, 1361-1363

TOPIC TAGS: radiation polymer synthesis, trimeric cyclic dimethyl phosphinoborine, irradiation effect, linear structure, polycyclic structure

ABSTRACT: It was shown recently (V. V. Korshak and N. I. Bekasova, Vyso-komolek. Soyed. 5, 1447 (1963)) that borasoles are polymerized under the action of ionizing radiation and form polymer products of polycyclic structure. It can be expected that irradiation may produce a similar effect in cyclic phosphinoborines. The authors selected for this purpose the trimeric cyclic dimethyl phosphinoborine. The irradiation was accomplished with the electronic accelerator of

Card 1/2

L 41351-65

ACCESSION NR: AP5001997

3  
the Institute for Physical Chemistry AN SSSR at 800 kv with a dose of  $6.5 \times 10^4$  rad/sec. With irradiation of  $4 \times 10^{18}$  ev/gm. sec, about 70% of the original monomer was transformed into polymer products of two types, one of which was insoluble in benzene, the other soluble. Their composition and thermomechanical properties were investigated. It was established that the products formed are polymers of a linear and of a polycyclic structure. Orig. art. has: 2 figures

ASSOCIATION: Institut elementoorganicheskikh soyedineniy, Akademii nauk SSSR (Institute of Organoelemental Compounds, Academy of Sciences, SSSR)

SUBMITTED: 07Jul64

ENCL: 00

SUB CODE: GC, NP

NR REF SOV: 001

OTHER: 002

  
Card 2/2

L 61725-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AP5013064

UR/0190/65/007/005/0928/0932  
678.01:54+678.86

37  
34  
B

AUTHORS: Rode, V. V.; Rafikov, S. R.; Yergebekov, M. Ye.; D'yachkov, G. A.;  
Vaskevich, D. N.; Konovalov, P. G.

TITLE: Thermooxidative degradation of polyalkylenephosphinic acids and their salts.  
22nd communication in the series "Chemical transformations in polymers"

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 5, 1965, 928-932

TOPIC TAGS: polymer, thermal degradation, oxidation, polyalkylphosphinic acid,  
polyethylene

ABSTRACT: The work was undertaken to extend the investigations of polyalkylene-  
phosphinic acids of different phosphorus content (A) and their salts (B), reported  
by S. R. Rafikov and M. Ye. Yergebekov (Dokl. AN SSSR, 160, 1331, 1965), and, in  
particular, to determine the thermal stability of these compounds at elevated  
temperatures. The thermooxidative degradation of the following compounds has been  
investigated: polyalkylphosphinic acids containing 1.7, 6.5, and 14% P and the Na,  
Ba, and Pb salts of 14% P acid. The results were compared with thermal degradation  
data for pure polyethylene. Thermooxidative degradations were carried out in air in

Card 1/2

L 61725-65

ACCESSION NR: AP5013064

the temperature interval 200-400C. Overall weight loss, the amount of water liberated, and activation energies are tabulated for compounds investigated and are compared with the corresponding data for polyethylene. It was found that poly-alkylphosphinic acids dehydrate at 200-250C and that the Na, Ba, and Pb salts of the 14% P acid decompose above 300C, the order of stability being Pb > Ba > Na. The introduction of 1.7% P into polyethylene greatly enhances its thermal stability. It is concluded that phosphorus-containing polymers are more stable than polyethylene. Orig. art. has: 2 tables and 5 graphs.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy AN SSSR (Institute for Hetero-Organic Compounds, AN SSSR)

SUBMITTED: 25Jul64

ENCL: 00

SUB CODE: OC,  
GC

NO REF SOV: 007

OTHER: 000

*awm*  
Card 2/2

L 61847-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/ENP(j)/EWA(h)/EWA(l) Pc-4/Pr-4/  
Fu-1 GG/JAJ/RM

ACCESSION NR: AP5018428

UR/0190/65/007/007/1179/1183 4/2  
66.095.26+678.745 39

AUTHOR: Chikishev, Yu. G.; Tsetlin, B. L.; Rafikov, S. R.

TITLE: Radiation-induced solid-state polymerization of diphenylvinylphosphine oxide

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 7, 1965, 1179-1183, and insert facing p. 1180

TOPIC TAGS: radiation polymerization, diphenylvinylphosphine oxide, solid state polymerization 19

ABSTRACT: The main kinetic features of the radiation-induced polymerization of diphenylvinylphosphine oxide - dependence of the polymerization rate on the dose, dose rate, temperature, and quality of the monomer single crystals - were investigated. X-ray diffraction, thermographic, and thermomechanical methods were employed. The radiation consisted of 0.8-1.0 Mev electrons. The process proceeds in a homogeneous medium until the monomer has been completely converted to the polymer, and solid solutions are formed in which the faceting and transparency of the original single crystals are retained. The linear variation of the polymerization rate with

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L 61847-65

3

ACCESSION NR: AP5018428

the dose rate and the low activation energy of the process conform to the usual pattern of radiation-induced polymerization of solid monomers. However, the absence of an aftereffect, the independence of the polymerization rate from the defectiveness of the crystals, and the preservation of transparency of the original crystals until the conversion of the monomer to the polymer was complete are features which set the polymerization of diphenylvinylphosphine oxide apart from other cases of solid-state radiation-induced polymerization. X-ray diffraction data led to the conclusion that a solid solution of the polymer in the monomer is formed in the course of the polymerization. "The authors thank P. Ya. Glazunov for enabling them to carry out this work and for the assistance rendered, and I. F. Manucharova for the thermographic measurements." Orig. art. has: 5 figures.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute of Organometallic Compounds, AN SSSR)

SUBMITTED: 28Jul64

ENCL: 00

SUB CODE: GC, SS

NO REF SOV: 004

OTHER: 002

Card 2/2

ZHURAVIEVA, I.V.; RODE, V.V.; RAFIKOV, S.R.

Thermodynamic parameter of polyarylate - tetrachloroethane interaction.  
Vysokom.sped. 7 no.7:1270-1272 51 '65.

(MIRA 18:8)

1. Institut elementoorganicheskikh soedineniy AN SSSR.



RODE, V.V.; RAFIKOV, S.R.; YERGEBEKOV, M.Ye.; VASKEVICH, D.N.; KONVALOV,  
P.G.; D'YACHKOV, G.A.

Thermal degradation of polyalkylenephosphinic acids and their  
salts. Vysokom. soed. 7 no.8:1452-1455 Ag '65. (MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 1151-66' EWT(m)/EPF(c)/EPF(n)-2/EWP(j)/T/EWA(h)/EWA(l) GG/RM  
ACCESSION NR: AP5022588  
UR/0190/65/007/009/1489/1494  
66.095.26+678.86

AUTHORS: Chikishev, Yu. G.; Tsetlin, B. L.; Rafikov, S. R.

TITLE: On the mechanism of the radiation polymerization of diphenylvinylphosphine oxide. 3rd communication in the series "Radiation polymerization of tertiary phosphine oxides"

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1489-1494

TOPIC TAGS: radiation polymerization, polymer, resin, radical polymerization, dimethyl formamide, methylene chloride, tertiary phosphine oxide

ABSTRACT: The radiation polymerization of diphenylvinylphosphine oxide in various solvents was studied in order to elucidate the reaction mechanism and the effect of solvents on radiation polymerization. The investigation is a continuation of the work reported previously, Yu. G. Chikishev, B. L. Tsetlin, S. R. Rafikov, Yu. M. Polikarpov, T. Ya. Medved', M. I. Kabachnik (Vysokomolek. soyed., 7, 33, 1965) and the experimental procedure followed here was the same as that reported in the same reference. The rate of polymerization was studied as a function of radiation dosage and temperature in dimethylformamide and methylene chloride solutions. The

Card 1/3

L 1151-66

ACCESSION NR: AP5022588

9  
effect of adding benzoquinone, diphenylpiperylhiazine, ZnO, MgO, and SiO<sub>2</sub> on the polymerization rate was also studied. The experimental results were compared with data on polymerization rates for reactions initiated with tertiary butyl peroxide. The experimental results obtained in dimethylformamide and methylene chloride solutions are shown in Figures 1 and 2 respectively on the Enclosure. It is concluded that the radiation polymerization in the melt as well as in solution is of a radical nature. The authors thank M. I. Kabachnik and A. D. Abkin for their valuable discussions and advice. Orig. art. has: 1 table and 4 graphs.) 44,55

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute for Hetero-Organic Compounds, AN SSSR) 44,55

SUBMITTED: 28Jul64 44,55

ENCL: 02

SUB CODE: OC,GC

NO REF SOV: 006

OTHER: 005

Card 2/3

L 1151-66

ACCESSION NR: AP5022588

ENCLOSURE: 01

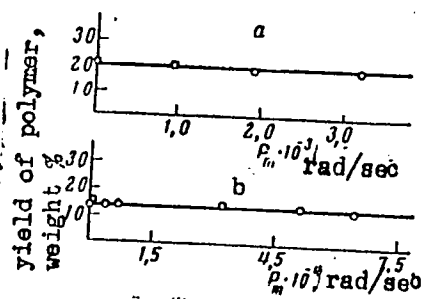


Fig. 1.

Dependence of polymer yield on radiation dosage in solution: a- dimethylformamide, b- methylene chloride. a- radiation dosage  $4.6 \times 10^6$  rad, temperature  $T = 25^\circ\text{C}$ ; b- radiation dosage  $7.7 \times 10^6$  rad,  $T = 20^\circ\text{C}$

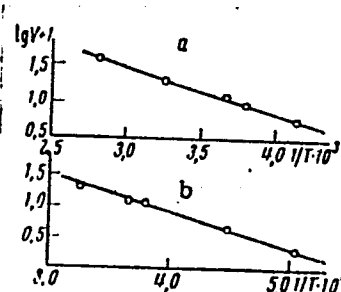


Fig. 2.

Dependence of the radiation polymerization rate of diphenylvinylphosphine oxide in solution on the irradiation temperature: a- dimethylformamide; b- methylene chloride. a- radiation dosage  $3.8 \times 10^6$  rad; b- radiation dosage  $9.6 \times 10^6$  rad

Card 3/3

L 2561-66 EWT(m)/EPF(c)/EWP(j)/T/ETC(m) WW/RM  
 ACCESSION NR: AP5022609 UR/0190/65/007/009/1609/1613  
 678.01:54+678.744 36  
 AUTHORS: Rafikov, S. R.; Chelnokova, G. N.; Artemova, Yu. V. 39  
 TITLE: Oxidative chlorophosphination of polyvinylacetate 7  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1609-1613  
 TOPIC TAGS: phosphorus, phosphorus organic compound, polyvinylacetate, polymer, chlorophosphination 44.55  
 ABSTRACT: The oxidative chlorophosphination of polyvinylacetate and the properties of its saponification products were investigated. The experimental procedure was similar to that reported by S. R. Rafikov, G. N. Chelnokova, M. E. Yergebekov, and T. V. Yershova (Vysokomolek. soyed., 7, 65, 1965). The composition and mechanical properties of chlorophosphinated polyvinylacetate and its saponification products are tabulated. The thermomechanical properties for polyvinyl (oxyacetoxy) phosphinic acids are shown graphically in Fig. 1 on the Enclosure. It was found that up to 12% phosphorus had been incorporated into polyvinylacetate by the reaction with phosphorus trichloride and oxygen. It is concluded that the phosphorus enters mainly into the principal chain of the polyvinylacetate. Orig. art.  
 Card 1/3

L 2561-66

ACCESSION NR: AP5022609

has: 3 tables and 3 graphs.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy AN SSSR (Institute for Heteroorganic Compounds, AN SSSR) 44,55

SUBMITTED: 23Oct64

ENCL: 01

SUB CODE: MT, GC

NO REF SOV: 003

OTHER: 003

Card 2/3

L 2561-66  
ACCESSION NR: AP5022609

ENCLOSURE: 01

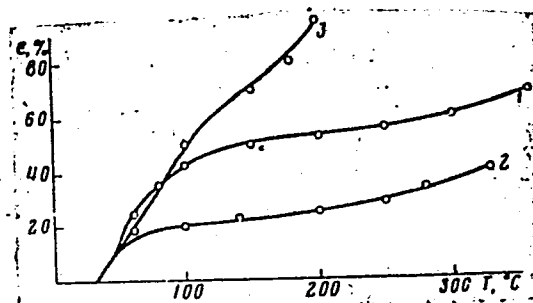


Fig. 1. Thermomechanical curves for compression of polyvinyl (oxyacetoxo) phosphinic acids:  
1,2- polymers containing 2.5 and 7.0% phosphorus respectively; 3- polyvinyl-acetate

Card 3/3

L 2925-66 ENT(m)/EPF(c)/ENP(j)/T/ETC(m) WW/RM

ACCESSION NR: AP5022610

UR/0190/65/007/009/1614/1618  
678.01:54+678.674

AUTHORS: Rode, V. V.; Zhuravleva, I. V.; Rafikov, S. R.; Korshak, V. V.;  
Vinogradova, S. V.; Pankratov, V. A.

TITLE: The high temperature degradation of polydihydroxydiphenylfluorentere-phthalate. 24th communication in the series "Chemical Transformation of Polymers"

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1614-1618

TOPIC TAGS: thermal degradation, thermal oxidation, organic compound, polymer/  
D 9 polyarylate

ABSTRACT: The thermal degradation and thermooxidation of polyarylate D-9 was investigated. This investigation is an extension of the previously published work of I. V. Zhuravleva, V. V. Rode, and S. R. Rafikov (Izv. AN SSSR, ser. khim., 1965, 269). The thermal degradation and thermooxidation were carried out over the temperature region from 325 to 500C by 25C intervals. Graphs for the kinetics of gas evolution during degradation and thermooxidation are presented. The composition of the thermooxidation-degradation products are tabulated. The

Card 1/3



L 2925-66

ACCESSION NR: AP5022610

experimental results obtained for the thermooxidation in air are shown graphically in Fig. 1 on the Enclosure. It is concluded that the thermooxidation degradation of polyarylate D-91 proceeds via a homolytic chain rupture accompanied by the evolution of CO<sub>2</sub>, CO, and H<sub>2</sub> gases. No induction period for the thermooxidation was observed. Orig. art. has: 2 tables and 6 graphs.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute for Heteroorganic Compounds, AN SSSR)

SUBMITTED: 23 Oct 64

ENCL: 01

SUB CODE: OC

NO REF SOV: 003

OTHER: 000

Card 2/3

L 2925-66

ACCESSION NR: AP5022610

ENCLOSURE: 01

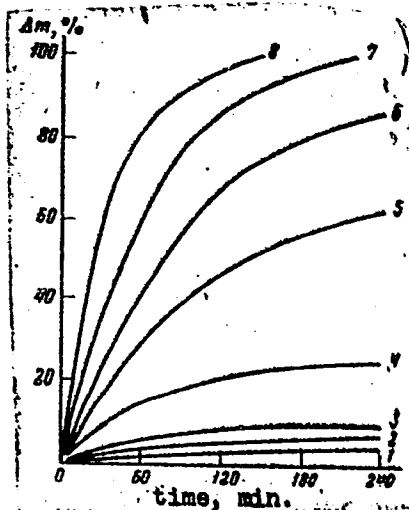


Fig. 1. Kinetics of weight loss of polyarylate D-9 during thermooxidation in air.  
1- 325°C; 2- 350°C; 3- 375°C; 4- 400°C; 5- 425°C;  
6- 450°C; 7- 475°C; 8- 500°C

PC  
Card 3/3

1. The first of the two main points of the report is that the  
2. the second point is that the report is a very good one.  
3. The third point is that the report is a very good one.  
4. The fourth point is that the report is a very good one.  
5. The fifth point is that the report is a very good one.  
6. The sixth point is that the report is a very good one.  
7. The seventh point is that the report is a very good one.  
8. The eighth point is that the report is a very good one.  
9. The ninth point is that the report is a very good one.  
10. The tenth point is that the report is a very good one.

L 27314-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) DS/WW/RM  
 ACC NR: AP6008971 SOURCE CODE: UR/0190/65/007/011/1908/1912  
 AUTHORS: Korshak, V. V.; Rafikov, S. R.; Vinogradova, S. V.; Fomina, Z. Ya.  
 ORG: Institute for Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)  
 TITLE: Photochemical degradation of polyarylates in solution [78th communication in the series: Heterocyclic polyesters]  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 11, 1965, 1908-1912  
 TOPIC TAGS: polyarylate plastic, uv absorption, uv irradiation, polyester  
 ABSTRACT: This investigation was conducted to extend earlier published work by V. V. Rode, A. S. Yarov, and S. R. Rafikov (Vysokomolek. soyed., 6, 2061, 1964) and to study the nature of the molecular changes in polyarylates which result from uv irradiation of their chloroform and cyclohexanone solutions. The polyarylates investigated were derived from phenolphthalein and chloranhydrides of terphthalic and isophthalic acids following the procedure of V. V. Korshak, S. V. Vinogradova, and S. N. Salazkin (Vysokomolek. soyed., 4, 339, 1962). The experimental results are presented in graphs and tables (see Fig. 1). It was found that in dilute solutions the principal degradation reaction consists of rupture of the main chain of the polymer, leading to a decrease in the average molecular weight and viscosity of the polymer. At higher concentration, structuration processes predominate. The photodegradation of the  
 Card 1/2 UDC: 678.01:54+678.674

L-27314-66

ACC NR: AP6008971

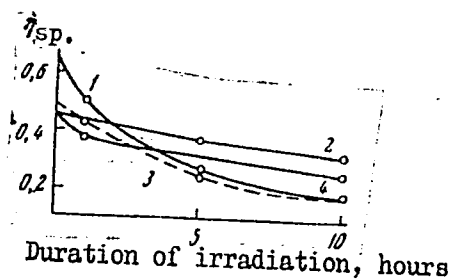


Fig. 1. Change in the specific viscosity during irradiation of 1% solutions of polyarylates in chloroform at  $20 \pm 2^\circ\text{C}$ . 1 - F-2c; 2 - F-2D; 3 - F-2c'; 4 - F-2'D. F-2c - polyarylate derived from terephthalic acid; F-2c' - low molecular weight polyarylate; F-2'D - F-2 plus 1.5% chlorinated diphenyl; F-2D - polyarylate derived from isophthalic acid.

polymer is more rapid in cyclohexanone solution than in chloroform solution, and it is sensitized by chlorinated diphenyl. Orig. art. has: 1 table and 5 graphs.

SUB CODE: 11/ SUBM DATE: 09Dec64/ ORIG REF: 003/ OTH REF: 001

Card 2/2

L 27303-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) DS/WW/RM  
 ACC NR: AP6008983 SOURCE CODE: UR/0190/65/007/011/1981/1984  
 AUTHORS: Zhuravleva, I. V.; Rode, V. V.; Rafikov, S. R.  
 ORG: Institute for Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)  
 TITLE: Formation of three-dimensional lattices in the thermal and thermooxidative aging of polyarylates / Second communication in the series "Aging and Stabilization of Polymers" /  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 11, 1965, 1981-1984  
 TOPIC TAGS: polymer, polyaryl plastic, polyarylate, thermal aging/ F-2 polyarylate, D-9 polyarylate  
 ABSTRACT: This investigation was conducted to extend earlier published work by V. V. Rode, I. V. Zhuravleva, S. R. Rafikov, V. V. Korshak, S. V. Vinogradova, and V. A. Pankratov (Vysokomolek. soyed. 7, 1614, 1965) and to study the thermal and thermooxidative aging of F-2 and D-9 polyarylates at low degrees of conversion. The experiments were carried out in the temperature interval of 250--450C. After exposure to the above temperatures for a period of 1--4 hours, the specimens were placed in tetrachloroethane. The soluble fraction of the polymer was subjected to viscosimetric, turbidimetric, light scattering, and molecular weight analysis. For the insoluble fraction, the equilibrium degree of swelling (Q) was ascertained, and the density of  
 Card 1/3 UDC: 678.01:54+678.674

L 27303-66

ACC NR: AP6008983

cross-linkages in the polymer were determined after T. Orofino and P. Flory (J. Chem. Phys., 26, 1067, 1957). The experimental results are presented in graphs and tables (see Fig. 1).

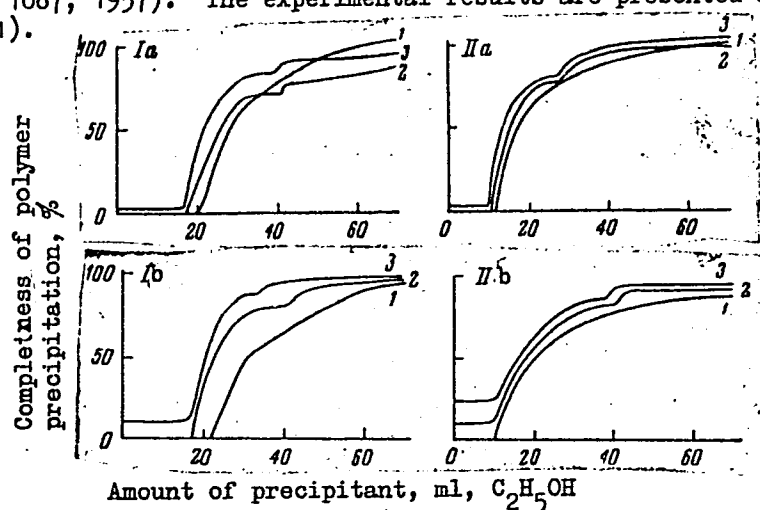


Fig. 1. Curves for the turbidimetric titration of the soluble polyarylate fraction after aging for 1 hour at different temperatures: I - polyarylate F-2; II - polyarylate D-9; a - thermoaging; b - thermooxidative aging; 1 - initial polymer; 2 - 275°C; 3 - 300°C.

Card 2/3

L 27303-66

ACC NR: AP6008983

It was found that polyarylate F-2 forms a nonswelling gel<sup>7</sup> more rapidly than polyarylate D-9. The molecular weight distribution curve of the soluble polymer fraction first increases and then, upon reaching a maximum, separates into two curves. Orig. art. has: 3 tables, 1 graph, and 5 equations.

SUB CODE: 11/ SUBM DATE: 29Dec64/ ORIG REF: 005/ OTH REF: 001

Card 3/3

*So*



RAFIKOV, S.R.; DEREVYANCHENKO, V.P.; ZHUBANOV, B.A.

Thermal stability of para- and meta-xylylenediamines. Izv.  
AN Kazakh. SSR. Ser. khim. nauk 15 no.1:30-37 Ja-Mr '65.  
(MIRA 18:12)

1. Submitted Sept. 30, 1964.

L 29000-66 EWT(m)/EWP(j) RM  
ACC NR: AP6018839 SOURCE CODE: UR/0079/65/035/003/0591/0591  
AUTHOR: Rafikov, S. R.; Chelnokova, G. N.; Artemova, Yu. V. 22  
ORG: Institute of Heteroorganic compounds, AN SSSR (Institut elementoorganicheskikh  
soyedineniy AN SSSR)  
TITLE: Reaction of carboxylic acid esters with phosphorus oxychloride  
SOURCE: Zhurnal obshchey khimii, v. 35, no. 3, 1965, 591  
TOPIC TAGS: alkyl radical, chloride, phosphate, ester, phosphorus chloride  
ABSTRACT: Alkyl acetates react with phosphorus oxychloride to form alkyl dichloro-  
phosphates and acetylchloride. The reaction was investigated for butyl acetate and  
phosphorus oxychloride. The addition of phosphoric acid exerts an appreciable cata-  
lytic effect upon this reaction. Orig. art. has: 1 formula. [JPRS]  
SUB CODE: 07 / SUEM DATE: 22Oct64

Card 1/1

BLG

UDC: 547.29+546.185

ACC NR: AT6034054

(N)

SOURCE CODE: UR/0000/66/000/000/0088/0092

AUTHOR: Chikishev, Yu. G.; Rafikov, S. R.; Tsetlin, B. L.

ORG: Institute of Organometallic Compounds AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Characteristics of radiation polymerization of diphenylvinylphosphine oxide

SOURCE: Simpozium po radiatsionnoy khimii polimerov. Moscow, 1964. Radiatsionnaya khimiya polimerov (Radiation chemistry of polymers); doklady simpoziuma. Moscow, Izd-vo Nauka, 1966, 88-92

TOPIC TAGS: radiation polymerization, organic phosphorus compound, polymerization kinetics, reaction mechanism

ABSTRACT: The principles of radiation polymerization of unsaturated organophosphorus compounds were investigated in this study with molten diphenylvinylphosphine oxide. Products with relatively high molecular weights (higher than in chemical polymerization) were obtained. Kinetics study showed the monomer was completely converted to polymer. There was no induction period and the polymerization rate increased constantly up to 60-70% conversion. There was no gel effect as is usual in radiation polymerization. Polymerization rate was directly proportional to radiation dosage, so radiation yield and molecular weight were independent of dosage. Energy

Card 1/2

ACC NR: A16034054

of activation was 6.3 kcal/mol. Studies of polymerization in solution and with inhibitors and initiators confirmed the radical mechanism of polymerization. X ray study showed the monocrystalline structure was retained up to about 20% polymerization in the solid phase; by 50-60% conversion the polymer had no characteristic crystalline lattice. Solid phase polymerization has not been noted before. It has the characteristics of a homogeneous process. The polymer forms solid solutions with the monomer in all ratios. Orig. art. has: 5 figures.

SUB CODE: 07/ SUBM DATE: 25Jul66/ ORIG REF: 004/ OTH REF: 006

Card 2/2

copy of the recording of a meeting of the staff of the World Bank  
on the subject of the situation. Ref. H-2-OR 147 on 11/14/1957  
in 1957. (MEMO 14-57)

1. Journal of Internal Medicine 20: 229-230. AN 64:1014P. Submitted June 1, 1965.

ACC NR: AT6034057

SOURCE CODE: UR/0000/66/000/000/0160/0164

AUTHOR: Morozov, Yu. L.; Vitushkin, N. I.; Glazunov, P. Ya.; Rafikov, S. R.;  
Khomutov, A. I.; Tsetlin, B. L.

ORG: Institute of Organometallic Compounds AN SSSR (Institut elementoorganicheskikh  
soyedineniy AN SSSR); Scientific Research Institute for Fiberglass (Nauchno-  
issledovatel'skiy institut steklovolokna); Institute of Physical Chemistry AN SSSR  
(Institut fizicheskoy khimii AN SSSR)

TITLE: Radiation gas phase graft polymerization on glass fibers

SOURCE: Simpozium po radiatsionnoy khimii polimerov. Moscow, 1964. Radiatsionnaya  
khimiya polimerov (Radiation chemistry of polymers); doklady simpoziuma. Moscow,  
Izd-vo Nauka, 1966, 160-164

TOPIC TAGS: radiation polymerization, graft copolymer, polymerization kinetics, glass  
fiber, acrylonitrile

ABSTRACT: The kinetics of radiation gas phase graft polymerization onto inorganic  
surfaces were investigated using X ray tube TRTs-3a as the radiation source,  
acrylonitrile as the monomer, and three types of glass fibers as substrate--  
1) conventional nonalkaline nonporous glass fiber, 6-7 micron diameter; 2) fine-pored  
(6-7 Å effective pore diameter) fiber made by treating the former with hydrochloric

Card 1/2

ACC NR: AT6034057

acid; and, 3) coarse-pored fiber (40 Å effective pore diameter) made by acid treatment of sodium borosilicate fiberglass. Reaction rates were measured directly under the beam with the help of a McBain type device. Induction of the graft polymerization reaction on the nonporous fiber was slow; with the porous materials the induction period was short, with more polymer forming on the coarser material. However when the pores were filled, the graft polymerization reaction rate was about the same as on the nonporous surface. Initial polymerization rates on all three fibers reached limiting values with monomer concentrations--at acrylonitrile vapor pressures were well under 100 mm Hg. In the porous samples the process rate is a linear function of the sorbed monomer concentration; the energy of activation is about 3 kcal/mol. The polymerization rate is proportional to the square root of the dosage for nonporous substrates--glass fiber, aerosil, powdered silica gel. Radical reaction mechanism was confirmed. The polymerization rate is a linear function of the dosage for the fine pored material, probably due to steric hindrance inside the pores rather than to a different reaction mechanism. Reaction initiation on metallic oxide and silicate materials is probably associated with the formation of the oxygen ion radical under ionizing radiation. Orig. art. has: 4 figures.

SUB CODE: 07, 11/ SUBM DATE: 25Jul66/ ORIG REF: 007

Card 2/2

L 41327-66 TIT(m)/P(j)/T IJP(c) AM/RM  
ACC NR: AP6023430 SOURCE CODE: UR/0190/66/008/007/1226/1230

AUTHOR: Vorkhotin, M. A.; Andrianov, K. A.; Zhdanov, A. A.; Kurashova, N. A.;  
Rafikov, S. R.; Rode, V. V.

ORG: Institute of Hetero-organic Compounds, AN SSSR (Institut elementoorganicheskikh soedineniy AN SSSR)

TITLE: Thermal degradation of certain polymetallo-dimethylsiloxanes

SOURCE: Vysokomolekulyarnyye soedineniya, v. 8, no. 7, 1966, 1226-1230

TOPIC TAGS: polysiloxane, titanium compound, polymer degradation, organoaluminum compound, depolymerization, elastomer

ABSTRACT: The thermal degradation of polyaluminodimethylsiloxane (PAS) and polytitanodimethylsiloxane (PTS) (see Fig. 1) was studied in a vacuum at various temperatures. The predominant process in the thermal aging of the polymers was found to be depolymerization involving rupture of the Si-O bond and formation of hexamethylcyclotrisiloxane. The depolymerization begins after the gel formation maximum has been reached; at the same time, the aluminum atom in the elastomer chain slightly increases and the titanium atom considerably decreases the depolymerization rate as compared to polydimethylsiloxane. The gel formation maximum in polytitanodimethylsiloxane is shifted by 200° toward higher temperatures as compared to polyaluminodimethylsiloxane. In addition to the depolymerization, a homolytic rupture of Si-C and C-H bonds with the liberation of hydrogen, methane, and ethane takes place during the thermal degra-

Card 1/2

UDC: 678.01:54+678.84



L 41227-66

ACC NR: AP6023430

ation of polyalumino- and polytitanodimethylsiloxane. Orig. art. has: 2 figures and 2 tables.

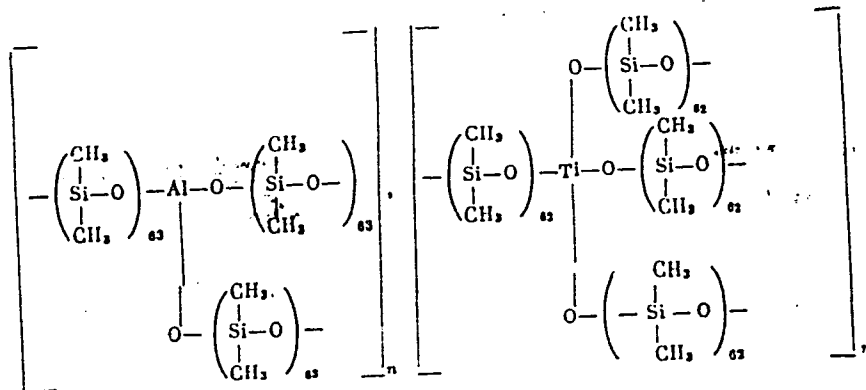


Fig. 1. Formulas of PAS and PTS.

SUB CODE: 07/ SUBM DATE: 16Jun65/ ORIG REF: 007/ OTH REF: 003

Card 2/2 MLP

ACC NR: AP7002938

(A)

SOURCE CODE: UR/0020/66/171/006/1352/1354

AUTHOR: Rafikov, S. R. (Academician AN KazSSR); Rode, V. V.; Verkhotin, M. A.;  
Andrianov, K. A. (Academician)

ORG: Institute of Heteroorganic Compounds, Academy of Sciences SSSR (Institut  
elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Mechanism of thermal stabilization of polydimethylsiloxane by titanium and  
iron compounds

SOURCE: AN SSSR. Doklady, v. 171, no. 6, 1966, 1352-1354

TOPIC TAGS: lubricant additive, lubricant, silicone lubricant, silicone lubricant,  
thermal stability

ABSTRACT:

A study was made of the mechanism of the effect of small amounts of titanium and iron compounds on the thermal degradation of polydimethylsiloxane (PS) in vacuum under isothermal conditions. The results were compared with previously obtained thermal degradation data on polytitanodimethylsiloxane (PTS) (PS containing Ti atoms in the backbone). The additives tested were tetrabutoxytitanium (BT), dibutoxytitanium bis(acetylacetonate) (AT), iron acetylacetonate (AI), titanium oxides (OT), and iron oxides (OI). The amount of BT, AT, or AI to be added was calculated so there was one equivalent of metal per 62 repeat units of PS, the same ratio as in the PTS.

Card 1/2

UDC: 547'128

ACC NR: AP7002938

BT, AT, and AI were introduced by mixing their solutions in dry benzene with a similar solution of PS, and subsequently evaporating the solvent. OT and OI were introduced by adding a ten-fold excess over theory to concentrated benzene solutions of PS, with subsequent drying and milling. The thermal degradation criteria used were weight loss, intrinsic viscosity of benzene-soluble fraction, amount of gel fraction, and amount of volatiles formed, all at 200—500C for 4 hr. Experimental results are given in graphic form. It was found that the additives have a beneficial effect on thermal stability similar to, but less pronounced than, that of the presence of titanium in the backbone at the onset (PTS). It was concluded that the beneficial effect of metal compounds is due to their reacting with the PS macromolecules in the process of thermal degradation to form a new high-thermal-stability, high-molecular-weight compounds containing metal atoms in the backbone. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: 02Apr66/ ORIG REF: 007/ OTH REF: 003/ ATD PRESS: 5112

Card 2/2

ACC NR: AP6032913

SOURCE CODE: UR/0360/66/000/055/0101/0102

AUTHOR: Rafikov, S. R.; Derevyanchenko, V. P.; Zhubanov, B. A.

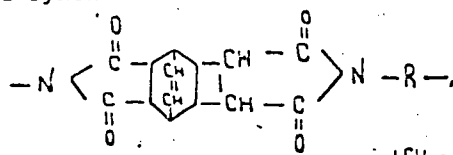
ORG: none

TITLE: Synthesis of polyimides from the adduct of maleric anhydride with beryene acid and various diamines

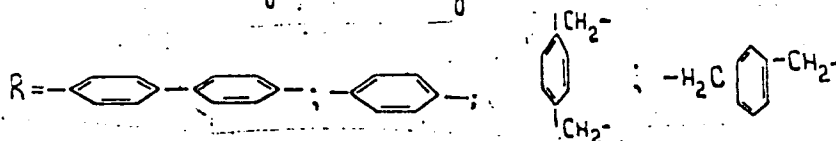
SOURCE: AN KazSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 101-102

TOPIC TAGS: polyimido acid, polyimide, heat resistant polymers, *heat resistant plastic, malic anhydride*

ABSTRACT: The authors have synthesized aromatic and aliphatic-aromatic polyimides having the groups



where



Card 1/2

UDC: 541.6:542.91

ADDITIONAL INFORMATION, T.Y.

of oxides of copper and iron with antimony. Zhur. neorg. khim.  
15 no.5:1715-1719 May '65. (MIR 18:6)

KASHAYEV, A.A.; RAFIKOV, T.K.

Methods of obtaining and calculating X-ray powder patterns. Trudy  
Alt. GMNII AN Kazakh. SSR 14:131-133 '63. (MIRA 16:9)  
(Metal powders) (X rays--Diffraction)

VASIL'YEVA, I.M.; LEBEDEVVA, L.A.; RAFIKOVA, F.M.

Interrelationship of water, carbohydrate and nitrogen  
metabolism of winter wheat in connection with the problem  
of frost resistance. Fiziol. rast. 11 no.5:897-905 S-O '64.  
(MIRA 17:10)

1. Biological Scientific Research Institute, Kazan State  
University.

S/031/62/000/006/069/117  
B149/B108

AUTHORS: Obolentsev, R. D., Timofeyev, V. D., Ratovskaya, A. A.,  
Baykova, A. Ya., Rafikova, L. G., Gavrilova, L. D.

TITLE: Group-composition of organic sulfur compounds in petroleum  
from the Bashkirskaia ASSR

PERIODICAL: Referativnyi zhurnal. Khimiya, no. 6, 1962, 527, abstract  
6M135 (Sb. "Khimiya seryaorgan. soyedineniy, soderzhashchikh-  
ya. v neftyakh i nefteproduktakh. v. 4", M., Gostoptekhniz-  
dat., 1961, 103 - 112)

TEXT: The total sulfur, sulfide and elemental sulfur content of crude  
petroleum from various deposits were determined, the former by double  
combustion, the two latter by anode polarography with solid electrodes.  
In addition, the distribution of organic sulfur compounds according to  
fractions with onset of boiling at 120, 120 - 200, 200 - 250, and 250-300°C  
from a series of petroleums was studied. The sulfide sulfur in the  
fractions was determined by the iodine complex method, the mercaptan  
sulfur by the Grimms method. Elemental sulfur was found in only one of  
Card 1/2



Group-composition of ...

S/081/62/000/006/069/117  
B149/B108

54 analyzed petroleums (Stolyarovskoye deposit) amounting to 0.0200% its content increases with increasing boiling temperature of the fraction. The sulfide sulfur constitutes 20-40% of the total sulfur content. A considerable amount of mercaptan sulfur was found in the light petroleum products of the Ishimbay deposits (for Terekla Arta petroleum well No. 531 92.5% in the fraction with onset of boiling at 120°C, 85% in the 120-200°C fraction, 63% in the 200 - 250°C fraction and 47.5% in the 250 - 300°C fraction). Mercaptans are practically absent from the fractions of Devonian petroleum of the Shpakovskoye, Serafimovskoye and other deposits, as well as in the North-Western deposits. [Abstracter's note: Complete translation.]

✓

Card 2/2

ACCESSION NR: AT4040448

S/2933/64/006/000/0014/0025

AUTHOR: Obolentsev, R. D.; Baykova, A. Ya.; Rafikova, L. G.; Timofeyev, V. D.

TITLE: Group composition of sulfur organic compounds in crudes from the Ural-Volga oil bearing region

SOURCE: AN SSSR. Bashkirskiy fillal. Khimiya seraorganicheskikh soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh, v. 6, 1964, 14-25

TOPIC TAGS: Bashkir crude, Tatar crude, crude sulfur content, sulfide sulfur content, mercaptan sulfur content, elemental sulfur content, sulfur organic compound thermostability, sulfur organic compound, petroleum analysis

ABSTRACT: Double combustion, anode polarography on solid electrodes and polarography on a dropping mercury electrode were used to analyze, respectively, the contents of total sulfur, sulfide sulfur, mercaptan sulfur and elemental sulfur, in 155 samples of crudes from various Bashkir and Tatar deposits. Fractions to 120, 120-200, 200-250 and 250-300C were distilled on a TsiATIM-58 assembly, temperature in the column being maintained either above or 20-30C below the upper thermostability levels of the respective sulfur organic compound. Results are presented in several tables and indicate total sulfur ranging from 0.72 to 4.93%.

Card

1/2

ACCESSION NR: AT4040448

Sulfide sulfur ranged from 15 to 40% of total sulfur, mercaptan sulfur from 0.1 to 15.1%, while elemental sulfur was found only in crudes from the Sakmaro-Artinsk levels of the Ishimbay deposits. Distillates contained mainly sulfide sulfur (30-90% of total S). Mercaptan S was present primarily in distillates (to 200C) from four levels and ranged from 8.8 to 72.79% of total S. Elemental S was absent or present in small amounts (0.01 - 8.9% of total S). It is concluded that the thermostability of sulfur organic compounds contained in crudes depends on the age of the crude and the composition of the oil bearing formations. Orig. art. has: 7 tables and 3 graphs.

ASSOCIATION: Institut organicheskoy khimii, Bashklsskiy filial AN SSSR  
(Institute of Organic Chemistry, Bashkir Branch, AN SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: FP

NO REF SOV: 007

OTHER: 006

Card 2/2

RAFILI, S. S.

Cand. Tech. Sci.

Dissertation: "Certain problems of Protecting Long Power Transmission Lined"

6 Jan. 49

Power Engineering Inst imeni G. M. Krzhizhanovkiy Acad. Sci. USSR

SO Vecheryaya Moskva  
Sum 71

RAFILI, S.S.

USSR/Electricity - Telemetering  
Ohmmeters Jun 51

"An Analysis of Measurements By Distance Ohm-  
meters on Very Long Lines," S. S. Rafili, Cand  
Tech Sci, Power Eng Inst, Acad Sci Azerbaydzhan  
SSR

"Elektrichestvo" No 6, pp 51-58

Analyzes measurements made with distance ohm-  
meters for different operating conditions of  
long transmission lines. Points out a number of  
defects in the directional ohmmeter (Type MHO).  
Examines the feasibility of using filter-type

200T16

USSR/Electricity - Telemetering Jun 51  
(Contd)

directional ohmmeters for 2-stage distance pro-  
tection. Submitted 10 Jul 50.

200T16

USSR/Chemical Technology. Chemical Products and Their Application -- Treatment of solid mineral fuels, I-12

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5470

Author: Uporova, Ye. P., Rafikov, S. R.

Institution: Academy of Sciences Kazakh SSR

Title: Concerning Determination of Carboxyl and Phenol Groups in Coal

Original

Publication: Izv. AN KazSSR, Ser. khim., 1956, No 9, 23-32

Abstract: A new procedure has been worked out, and the effect of individual factors has been investigated, for determining the optimal conditions of the determination; the procedure consists in first determining the sum of acidic carboxyl and phenol groups by shaking a sample of comminuted coal (0.01 mm) for 4 hours with 0.1 N NaOH in 40% alcohol. Allowing to settle for 15 hours, filtering and washing the coal on the filter with warm water, and determining the residue of unreacted alkali, in the filtrate, by titration with 0.1 N HCl. Content of carbonyl groups is determined by an analogous procedure on addition

Card 1/2

USSR/Chemical Technology. Chemical Products and Their Application -- Treatment of solid mineral fuels, I-12

Abst Jcurnal: Referat Zhur - Khimiya, No 2, 1957, 5470

Abstract: to the sample of coal 0.1 N  $\text{Na}_2\text{CO}_3$  in 40% alcohol, while the content of phenolic hydroxyls is calculated by difference. On increase of the degree of carbonification the content of acidic groups in the coal decreases. It is shown that the values of heat of wetting of coal by alcohol or alcohol solutions of alkali, increase with increase in concentration of the alcohol. It is shown that determination of carboxyl groups of coal by means of calcium acetate does not yield reproducible results because of the different adsorption of acetic acid by coal of different type.

Card 2/2

RAFIKOV, S.T.; SUVOROV, B.V.; SOLOMIN, A.V.

Oxidation of organic compounds. Report No.14: Intermediate stages of incomplete oxidation of benzene in the vapor phase in the presence of tin vanadate. Izv.AN Kazakh.S.S.R.Ser.khim. no.1:58-66 '57. (MLRA 10:5)  
(Oxidation) (Benzene) (Tin vanadate)



REZNIK, A.Ye., dotsent; BAYTERYAKOVA, N.R., assistant; ODELEVSKAYA, N.N., assistant; FEDORENKO, P.N., assistant; DAVIDOV, V.Ya., assistant; YENAJEYEVA, D.Sh., ordinator; GRUMIS, L.P., ordinator; RAFIKOVA, K.A., ordinator; IBRAKIMOVA, A.M.

Clinical features of the influenza outbreak in Kazan in October 1957. Kaz.med.zhur. 40 no.1:34-37 Ja-F '59. (MIRA 12:10)

1. Iz kliniki infektsionnykh bolezney (zav. - dotsent A.Ye. Beznik) Kazanskogo meditsinskogo instituta.  
(KAZAN--INFLUENZA)

The preparation of butadiene from sym-dimethylethylene. B. A. Kazanskii and I. A. Rafilzon. *Sintet. Kachest* 1934, No. 1, 31-4. - From 3 to 4% of sym-di-methylethylene (I) is formed during the process of prep. Butadiene from alc. After treatment of I with Cl gas 2,3-dichlorobutane (II) is obtained and by removing 2 HCl from II butadiene is obtained. The authors passed II through an elec. oven at an av. temp. of 360-400°, using different catalysts. The best yield—30-40% butadiene—was obtained with BaCl<sub>2</sub>; 15.3% at 381-388° with NiCl<sub>2</sub> and 6.8% at 300-370° with Al<sub>2</sub>O<sub>3</sub> (all II was decompd.). The catalysts were poisoned during the reaction by the tar-like products.

A. Pestoff

POLAND/Chemical Technology - Chemical Products and Their  
Application. Synthetic and Natural Medicinal Sub-  
stances. Gelelicals and Medicinal Forms.

H.

Abs Jour : Ref Zhur - Khimiya, 10, 1959, 36007

Author : Rafinski, L.

Inst :

Title : The Obtaining of Aminobenzoic Acid by the Catalytic  
Reduction of p-nitrobenzoic Acid over Skeletal Ni-Cata-  
lyzer.

Orig Pub : Acta polon. pharm., 1958, 15, No 4, 293-294.

Abstract : Investigation has shown that Na, Ca and K salts of p-  
nitrobenzoic acid (I) are reduced over skeletal Ni-cataly-  
zer with difficulty. Good results (yield over 80%) were  
obtained at the reduction of an aqueous solution of an  
NH<sub>4</sub> salt (duration of the reduction, about 9 hours) or an  
alcoholic solution of free I (duration, about 4 hours).  
-- I. Fedin.

Card 1/1

EXCERPTA MEDICA Sec 11 Vol 9/2 O.R.L.

Feb 56

420 RAFINSKI R. Klin. chorób Dziecięcych Akad. med. w Poznaniu. \*Wartość bronchoskopii w leczeniu gruźlicy dzieci i niemowląt. The value of bronchoscopy in the treatment of tuberculosis in children and in infants GRUŻLICA 1954, 22/5 (327-340) Illus. 7

The author performed over 3,000 bronchoscopies; there were no fatal cases; in only 2 cases were there complications, viz. subglottal oedema; one child developed diphtheria one day after bronchoscopy. In cases of oedema, intubation was performed. Within 2 yr. 986 bronchoscopies in 695 children were carried out; of those, in 442 instances pathological lesions were found, viz. infiltration: 93 cases; tuberculoma: 10 cases; granulation tissue and fistula: 120 cases; stenosis: 74 cases; purulent excretion: 92 cases; encroaching lymph nodes: 37 cases; ulceration: 16 cases.

Dobrowolsi - Warsaw (XV, 11)

RAFINSKI, R.; JACOBOWSKI, C.; GOLENIOWA, A.; RAFINSKI, R.; DOBROWOLSKI, A.

Superior vena cava syndrome. Pediat. polska 32 no. 7: 603-604, 1957.

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 GRAZINSKI, R. Klin. chorób Dziecięcych A. M. w Poznaniu. \*Wartość bronchoskopii w leczeniu gruźlicy dzieci i niemowląt. The value of bronchoscopy in the treatment of tuberculosis in children and in infants GRUŻLICA 1954, 22/5 (327-340) Illus. 7

Poznań Kierownik: prof. dr med. J. Groniowski. Adres: Poznań 12  
 Poznań al. Wolności 14.

(LEWIS CAVAS, abnor.

of superior vena cava, manifest. a. h. (P. 11)

RAFINSKI, ROMAN

RAFINSKI, Teodor.; RAFINSKI, Roman.; CESARSKA-SZYMENDERA, Danuta.

Treatment of chronic pleuro-pulmonary fistulas. Polski tygod.  
lek. 12 no.28:1070-1076 ' July 57.

1. (Z Kliniki Chorob Dziecięcych A. M. w Poznaniu; kierownik:  
prof. dr med. T. Rafinski). Adres: Poznan, ul. Marii Magdaleny 14.  
Klinika Chorob Dziec. A. M.  
(LUNGS, fistula,  
pleuro-pulm., ther (Pol))  
(PLEURA, fistula,  
same)

RAFINSKI, Roman

Attempted therapy of bronchial asthma with so-called endo-bronchial block. Preliminary communication. Otolaryng. pol. 17 no.4:458-459 '63.

1. Z I Kliniki Chorob Dzieci AM w Poznaniu. Kierownik: prof. dr. T.Rafinski.

\*

RAFINSKI, R.

Simple method of bronchography in infants and children. *Pediat.*  
*polska* 27 no.12:1477-1486 Dec 1952. (CJML 24:2)

1. Of the Pediatric Clinic (Director--Prof. K. K. Jonscher, M.D.)  
of Poznan Medical Academy.

SZERESZEWSKA Halina; RAFINSKI, Roman

A case of pulmono-broncho-hepatic fistula. Polski tygod.lek.  
10 no.22:732-734 30 May '55.

1. Z I Kliniki Chorob Wewnetrznych A.M. w Poznaniu; kierownik:  
prof. dr St. Kwasniewski) Poznan, I Klinika Chor. Wewn. Ak.Med..  
ul. Długa 1/2

(LUNGS, fistula  
pulmono-broncho-hepatic, diag. & ther.)

(BRONCHI, fistula  
pulmono-broncho-hepatic, diag. & ther.)

(LIVER, fistula  
pulmono-broncho-hepatic, diag. & ther.)

(FISTULA  
pulmono-broncho-hepatic, diag. & ther.)